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An Address
ON
OCCUPATIONAL AND OTHER CAUSES OF PULMONARY FIBROSIS.

DELIVERED TO THE NORTH OF ENGLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION, FEBRUARY 19th, 1925,

BY

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FOUR years ago I gave to this Branch a demonstration of the pathological changes met with in fibrosis of the lungs caused by inhalation of dust by men following certain occupations, such as that of ganister mining and crushing, also by gold-miners who had worked in the Transvaal. I now wish to extend my remarks by drawing attention to other forms of illness during or after which, if the patient survives long enough, structural changes occur in the lungs, whereby they lose their spongy character, and, instead of remaining air-filled and elastic organs, they become semi-solid and unable to retract.

In order to appreciate what is meant by pulmonary fibrosis it is well to visualize a type of lung consolidated by an excessive increase of fibrous tissue, such as the lung of a gold-miner who has died of the malady. It was during and shortly after the close of the South African war that men who had previously been coal-miners in the Northumberland pits, and who had gone seven or eight years previously to South Africa, attracted thither by the high wages, were returning home with well lined purses, but, alas! only too frequently to die within a year or two of silicosis, caused by inhalation of dust given off during drilling of the rock in the mines of the Transvaal. As I was consulted by many of these men, they supplied me with the experience which formed the basis of my paper, entitled "Gold-miner's phthisis," published in the *Lancet* in 1902. Some of the men looked rather bronzed and weather-beaten, but the one particular circumstance which caught my attention was the marked dyspnoea which even the slightest exertion induced. On getting up from one chair in my consulting room to move to another, or on taking a few paces in the room, the breathing became short and difficult, so that the patients were glad to sit down and rest. I was impressed, too, by the marked reduction of their respiratory capacity. In many of the men, instead of there being a difference in chest measurement of two to three inches between inspiration and expiration, it was frequently only one inch. Here and there in the chest small areas of dullness were appreciable, especially towards the bases. The respiration was deficient in places, while over other portions of the lungs there could be heard small bronchial râles; but whether râles were heard or not the dyspnoea was always in excess of the physical signs.

If it was a miner whom I was examining in the early stages of the illness, few physical signs might be detected; probably the patient had lost weight, and was the subject of cough as well as of shortness of breath. In the early stages expectoration was not abundant, and on microscopical examination it was found to be free from the presence of tubercle bacilli. In some instances the illness pursued its course to a fatal termination without the lungs becoming tuberculous, as confirmed by *post-mortem* examination. The lungs would be found greyish-black in colour, hard to the touch, stony hard in fact, and giving rise to a gritty sensation on being cut with the knife. In the lungs of many of the men there were no signs of cavity, large or small, so that silicosis in its inception, and all through its duration, can be, and frequently is, a non-tuberculous disease. Some of the patients subsequently became tuberculous, and this was indicated by a rise of the evening temperature, by sweating, increase of cough, and expectoration in which tubercle bacilli might be found. When the malady had progressed to a further stage, the breathing would be found to have become still shorter; occasionally haemoptysis occurred, or the expectoration would be slightly streaked with blood; the expansion of the chest tended to become more restricted, owing to extension of adhesions between the bases of the lungs and the diaphragm; dullness on percussion increased in area; moist râles became more abundant, and as digestion became impaired the general health declined correspondingly. On *x*-ray examination of the chest mottling of the lung in places could be detected.

It is interesting to compare the lungs of coal-miners with those of men who have followed such dusty occupations as ganister mining and crushing, also gold-mining. Ganister is a siliceous clay which is made into bricks for lining iron and steel furnaces, since the bricks are capable of withstanding enormously high temperatures. Of the various kinds of dust inhaled by workmen, that which contains silica is one of the most dangerous. Formerly it was taught that the injury inflicted upon the lung and which ended in fibrosis was the result of the physical action of the particles of dust. Since many of these are sharp-pointed, it was believed that during inhalation these were carried beyond the protective barrier of ciliated epithelium, much of which had probably disappeared as the result of recurrent catarrh, and having reached the small bronchi and the pulmonary alveoli they inflicted damage of a purely physical character. This is no longer regarded as the complete explanation. Professor Haldane of Oxford and Mavrogordato have shown by their experiments that when fine particles of soft coal are inhaled these are met by a reactive resistance on the part of the bronchial mucous membrane and the pulmonary alveoli, during which the large wandering cells lying in the alveoli, or on the inner surface of the minute bronchioles, take up the carbon particles, and as these cells are phagocytic in their function and are subsequently passed up into the bronchi, many of the carbon particles which have been inhaled are in this manner eliminated. Silica dust, on the other hand, is not readily soluble, nor are its particles easily phagocytosed; they penetrate into the lymphatics of the lungs and are carried to the glands at the hilum, or they induce pulmonary fibrosis. Although silica dust is very insoluble, yet Gye and Kettle have demonstrated that silica may become soluble in the lungs, and that the dissolved material is equally capable of acting harmfully upon the pulmonary tissue. The injury thus inflicted upon the lungs would be, according to this theory, not the result of the physical but of the chemical properties of the dust.

There still remains, however, the probability that the inert or undissolved particles of silica also play a considerable part in inducing inflammatory reactions in the lungs, and this raises the question as to how far the size of the particles can be regarded as contributing to the subsequent structural changes. On examining microscopically a section of a silicotic lung, the fibrotic portions appear as if they had been peppered with very fine dust. By means of a micrometer the size of these particles can be estimated: they are measured to one-thousandth part of a millimetre, the unit being known as a micron (μ). Pathological research in this country has shown that the larger number of particles present in the lungs are below 1 micron, and seldom above 2, although they may sometimes measure 10 microns or more. It would therefore appear as if it was the particles below 2 microns which are the most dangerous, so that while a man may be working in a thick atmosphere heavily laden with dust, readily visible to the naked eye, yet if most of these particles are above, say, 50 microns, there is less likelihood of this dust causing silicosis than an atmosphere in which the particles are smaller than 2 microns in dimension. It is these which, when inhaled, overleap the protective epithelial barrier in the larger respiratory passages and reach the lungs.

During the time I was following up the subject of Rand miner's phthisis from the clinical point of view, it was my wish to become practically acquainted with, as nearly as possible, the conditions under which gold-miners had been working. Accordingly I visited the tin mines in Cornwall, where rock drilling was much in use. The Cornish mines are much deeper than the coal-mines in the North of England, and the rock is harder. Along with an under mine manager, a working miner, who was an experienced rock driller, and the doctor, I went into a mine wherein we crawled through an opening into a chamber from which a certain amount of ore had already been extracted. After

we had squatted as best we could the rock drilling was begun. In a few minutes the atmosphere became so thick that breathing was, to those of the party unaccustomed to dust, somewhat uncomfortable and difficult, and although we were all squatting closely together we could not see each other. Even the glare of our lights could not penetrate the dusty atmosphere. In addition, as no air was circulating through the chamber, the temperature became uncomfortably hot. Subsequently we removed ourselves, as best we could, from the confined space, and travelled into one of the main ways where the air was clear and cool. We inspected other sections of the mine, and in two hours returned to the place where we had witnessed the rock drilling. By this time the dust had considerably settled and the air had become comparatively clear.

We were now to have the opportunity of seeing automatic water spraying carried on simultaneously with the rock drilling. The difference between the two operations was remarkable. Instead of the atmosphere becoming thick and dusty, and the temperature raised, the air remained clear, the temperature low, and we could not only see each other quite well, but could converse without difficulty. As to the utility and efficacy of water spraying during rock drilling there can be no doubt; but while water spraying lays dust, many of the finest particles may yet rise into the atmosphere with the spray, and although these particles may not be visible, yet it is they which, when inhaled, harmfully affect the lungs.

One of the dustiest industrial operations I have seen is asbestos crushing, carding, and grinding. Some of you have probably not seen asbestos in its native condition. It is an extremely hard rock with small white fluffy fibres attached to it, almost like finely frayed cotton wadding, and therefore suggesting vegetable origin, but it is really a mineral substance. The rock is crushed in closed machinery, but much fine dust and fibre escape into the workroom. From the finely comminuted pieces of stone the fibre is separated by a mechanical process of teasing, so that the material as it passes away from the machine looks like raw cotton, only the fibres are loose and not so adhesive. During these processes the atmosphere of the workroom is quite cloudy; the hair and clothing of the men become covered with white fluff. Even by brushing I had difficulty in removing the material from my clothes. After having been teased, the material is passed through carding machines, so as to transform it into a cord-like structure; this is subsequently spun or is woven into the flat plaques of asbestos with which all of you are familiar. I was rather surprised when the manager of the works informed me that the men never suffered from respiratory troubles. That such existed I had not the slightest doubt. In the BRITISH MEDICAL JOURNAL of July 26th, 1924, this was definitely shown by Dr. W. E. Cooke of Wigan in an interesting article entitled "Fibrosis of the lungs due to the inhalation of asbestos dust." So far as I know his is the first paper on the subject in the English language. Dr. Cooke informs us that asbestos contains, amongst other compounds, calcium and magnesium silicate, and 40 per cent. of SiO_2 or silica. The mineral fibre is translucent, except at the fractured ends, where it is blackened. The patient whose illness and death supplied the basis of Dr. Cooke's information was a woman, aged 33, who had worked in asbestos factories since the age of 13—that is, for twenty years. Between 1917 and 1922 she had remained away from the factory, but subsequently she worked at intervals, and died in March, 1924. An *x*-ray plate showed extensive fibrosis with calcareous glands at the root of the lungs. On section the right lung was found to be fibrosed and airless; there was a large cavity in the apex and the pleura was thickened. The left lung was adherent and its pleura in places was also thickened; this lung too was considerably fibrosed. On microscopical examination fibrotic changes were very marked; around the caseating areas in the lungs giant cells and tubercle bacilli were found. The case was therefore one of silicosis accompanied by tuberculosis, the tubercle having been a later development, for Professor J. M. Beattie of Liverpool, whose research work on dust and pneumonokoniosis is well known, has experimentally produced fibrosis in animals by causing them to inhale asbestos dust.

While mineral dust is a frequent cause of pulmonary fibrosis, the structure of the lung can be similarly altered by micro-organisms or their toxins in such diseases as tubercle and syphilis. Upon some of the less well known associations of these I should like to say a few words. In silicosis the pathological changes occur around the minute bronchi and within the alveolar septa. A little while ago my attention was drawn by Professor Stuart Macdonald to fibroplastic changes which had taken place in the lungs of one of my patients who had died from croupous pneumonia, but therein, and differing therefore from what occurs in silicosis, the initial changes had commenced within the exudate in the alveoli, and were rapidly leading to organization. In some of the alveolar spaces wherein the exudation had become softened, and partly removed by absorption, the leucocytes which had continued to be healthy and active were becoming transformed into fibroblasts, and these, becoming superimposed, lined the interior of the alveoli, and were gradually obliterating them. Had my patient lived long enough there would probably have occurred real fibrosis of those portions of the lung which had been during life the site of croupous pneumonia. This, I admit, is rather an uncommon sequel of pneumonia, for the exudate is usually absorbed, and the lung regains its previous resiliency.

In syphilis a similar thickening takes place; there may be gummata or diffused interstitial fibrosis. In the diffused form there is hyperplasia of the connective tissue. The alveolar walls become thickened, dense masses of fibrous tissue are formed in which the remains of compressed alveoli can be detected, and the walls of small blood vessels are thickened.

Influenza and Pulmonary Fibrosis.

A year ago Dr. Bernard Shaw gave an interesting demonstration, illustrated by lantern slides, of the relationship between influenza and pulmonary fibrosis. After showing how rapidly the epithelial lining of the small bronchi and the alveolar walls becomes destroyed in influenza, he indicated that just as rapidly were reparative processes taking place with, as a result, occlusion of several of the minute bronchi; the alveolar walls, too, were thickened by organization of fibroblasts; newly formed capillaries also could be observed extending into the leucocytic exudate whereby this material became changed into granulation-like tissue. There thus occurs early in some forms of influenza a rapid tendency to the development of pulmonary fibrosis.

In almost a similar manner the bronchopneumonia which accompanies measles is followed by an increase of the interstitial tissue of the lungs. This is the case in children, and is frequently the explanation of the lung troubles from which they suffer in later years. During the recent war similar changes were observed in the lungs of several of the United States soldiers who had been drawn from the agricultural areas. These healthy men when housed in barracks and overcrowded buildings, during their military training, became an easy prey to measles. Many of the men succumbed to the accompanying bronchopneumonia, and in their lungs fibrotic changes were found to have already taken place.

There is a growing opinion that a silicotic lung is more liable to become affected by tubercle than a non-silicotic. It would almost appear as if a larger percentage of gold-miners affected by silicosis had during recent years become more liable to pulmonary tuberculosis than three decades ago. It may be that the men had been brought into more immediate contact with infection than previously. In a well marked case of dust disease of the lungs the fibrous tissue is hard and thick, and it hardly seems to offer favourable conditions for the reception and multiplication of tubercle bacilli. But while certain portions of lung are fibrosed other portions are the seat of bronchial catarrh, so that it is possibly in those portions of the lung that the tubercle bacillus finds a suitable nidus for its development.

The causes of pulmonary fibrosis with which we have been concerned have in the main operated from within the alveoli inwards—that is, towards their interstitia. Frequently the operative agent has been inhaled dust,

or it has been the presence of toxins in the exudate acting upon leucocytes therein and converting them into fibroblasts.

In my visit to Harvard University a little over a year ago I was extremely interested to learn from Dr. Drinker of some experiments he had been carrying out in regard to pulmonary fibosis. It had occurred to Drinker that since fibrotic changes in the lungs are the result of inhaled dust having penetrated the alveolar wall and induced irritation of the interstitial tissue, possibly a similar chain of events might take place if particles of insoluble dust were injected into veins not far distant from the heart. Accordingly Drinker injected into the veins of animals extremely minute particles of manganese silicate, and he found that structural alterations were established in the lungs. Since my conversation with Dr. Drinker I have carried out a series of experiments on the Harvard lines, but instead of using manganese silicate I employed finely powdered bauxite, an aluminium ore. This was conveyed into the auricular veins of rabbits, and after a series of injections conducted over a few months we found in the microscopical sections of the lungs, kindly prepared for me by Mr. John Secker of the Physiology Department, large phagocytic cells lying within the alveoli and laden with dust particles, similar cells surrounded by mucus passing outwards by the small bronchi, and the same type of cell in the spleen. Until the series of experiments which I am at present carrying out is concluded, it is somewhat difficult to explain the presence and escape of the phagocytic cells alluded to. They are not leucocytes in the ordinary acceptation of the term. When an injection of finely divided particulate material is made into the veins of an animal not far from the heart the particles are carried along in the blood stream, and as the pulmonary capillaries are those through which, after leaving the heart, they would primarily pass, several of the particles are probably taken up by the endothelial cells. From the size and shape of the phagocytes found in the pulmonary interstitia and alveoli, also in the minute bronchi, the probability is that they are endothelial cells which have broken off from the pulmonary capillaries, and that they were fulfilling their function of eliminating foreign material from the blood. Their presence in the splenic pulp is similarly explained.

PROLONGED MENINGOCOCCAEMIA WITH TERMINAL MENINGITIS.

BY

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THE following record emphasizes the importance of searching for the meningococcus in obscure cases of pyrexia, particularly of an intermittent type.

The patient was a man of 57, an engine fitter, who had been unusually healthy. For thirty-four years he had not lost a day's work; he lived comfortably, and was a teetotaler. About the beginning of May, 1924, he had an attack of so-called "influenza." It commenced abruptly with shivering and fever, but he had no headache or other pain, and no catarrh or pulmonary symptoms of any kind. He had some vomiting, and in a day or two slight diarrhoea came on, which lasted only a few days. Weakness was really the principal symptom. The fever was not continuous, but he had rigors at odd times, apparently almost daily. He was in bed for eight or nine weeks. He was up for about a fortnight before he was admitted to Ward 32, but could hardly walk because of weakness, and he had lost nearly 3 st. in weight. He came into the infirmary on July 8th, 1924.

His only symptoms were weakness and loss of appetite; the appetite returned after a few days in hospital. Physical examination gave entirely negative results, and need not be detailed. All the systems were normal for a man of his age, and remained so throughout. The spleen was not enlarged at any time. For the first two days the temperature remained normal; on the third day it went up with a slight rigor, but only to 100° F., the next day to 101°, and on that day his white count was found to be 10,400. Throughout the illness this leucocytosis with polymorph increase persisted; the highest figure reached was 29,100, a month later.

From this time onwards there was, in the way of symptoms, nothing but increasing weakness. The temperature followed a most erratic course; on some days, and sometimes for two or three days together, there would be only a slight rise, say to 100° F., on others, coming singly or in small groups, rigors, when the temperature ran up for a short time to, say, 103°. These occurred at any hour of the day or night; between times the temperature was generally subnormal. From August 26th to September 9th the rigors occurred daily, and were more severe; the temperature was higher, reaching 104° or over on most days. The pulse rate varied strictly with the temperature: when it was subnormal the pulse was in the 60's, when it reached 104° it often ran up over 120. In the same way the respiration rate varied from 20 to 32.

Throughout this period everything we could think of was investigated in the hope of getting some light. The chest was *x*-rayed, with negative results; the urine was examined daily and was always normal. Though the persistent leucocytosis made enteric or malaria unlikely, the blood was subjected to the Widal test for the usual organisms, with negative results, and examined constantly for plasmodia, equally unsuccessfully. The spirochaete of rat-bite fever was sought in vain; the patient denied ever having been bitten by any animal, and it was only about ten days before his death that his wife remembered that about the middle of April he had been badly scratched on the back of the hand by a "wild" cat that lived by rat-catching. This led to several intravenous injections of novarsenobillon, without improvement. The Wassermann test was negative in both blood and cerebro-spinal fluid, and the latter showed no increase of cells and no organisms on culture. The first blood culture, in July, gave a growth of staphylococci and Gram-negative diplococci. As the staphylococci were almost certainly a contamination, it was thought the diplococci might be so also; but the observation was repeated a few days later and they were found alone, and again on August 12th. A blood culture was not made again till September 8th, and then no organism of any kind was found. Cultures were taken from the urethra, but no diplococci were found.

About September 9th meningeal symptoms began to develop—headache, head retraction, drowsiness, and incontinence of urine and faeces. The temperature was more continuously raised, seldom dropping to normal, but never running above 101°; usually it was about 100°. The rigors ceased. The patient gradually became weaker, emaciated very rapidly, grew more drowsy, and died suddenly on September 16th.

The first lumbar puncture to yield positive results was made on September 11th. The fluid was definitely under pressure, was turbid, and microscopically showed many polymorphs and large lymphocytes. In some parts of the films diplococci were found, practically all intracellular, and always in the large lymphocytes, never in the polymorphs. The same diplococcus which had been found in the blood was grown from this fluid. As lumbar puncture gave relief it was repeated daily. On the 12th the cell count was 5,800 per cubic millimetre. In the later punctures the fluid became clearer.

Post mortem a certain amount of bronchitis and hypostatic congestion of lungs were found. The heart was practically normal; very slight atheroma in the aorta; liver normal, except for some cloudy swelling and perhaps fatty degeneration; spleen not enlarged, apparently normal; cortex and medulla of both kidneys slightly narrowed; other organs all normal except the brain. The pia arachnoid showed areas of localized thickening in various parts, chiefly towards the base and over the cerebellum. These were evidently patches of meningitis, and on section microscopic examination confirmed this view. There was a marked exudate, with numerous polymorphs; slight excess of cerebro-spinal fluid, with slight dilatation of the ventricles internally, but the brain substance was normal.

Cultures made *post mortem* from the heart blood, spleen, and liver remained sterile, but the organism was obtained from the exudate at the base of the brain.

The Micro-organism.

The diplococcus, when first obtained from the blood stream, resembled a meningococcus in its cultural characters, save that it grew more readily on ordinary media than do most strains of meningococcus. On plain agar slopes it grew well, even when inoculation was not particularly heavy, and when no accessory substances could have been carried over from the original medium. Growth on glucose ascitic fluid agar (Thomson's) was profuse. After subculture for some time it lost this readiness of growth to some extent, and finally became indistinguishable culturally from type strains of meningococci, so far as readiness of growth on various media was concerned. Morphologically, it was indistinguishable from the meningococcus or gonococcus.

Its fermentation reactions were those of the meningococcus; it produced acid in glucose and maltose, no change in lactose, saccharose, and salicin. The gonococcus does not ferment maltose,

while *Micrococcus catarrhalis* ferments neither maltose nor glucose.

A rabbit and guinea-pig inoculated with cerebro-spinal fluid containing the organism showed no effect, though the guinea-pig died about a fortnight later. No pathological lesions were discovered, and cultures made from its brain and organs did not yield the organism in question.

Guinea-pigs inoculated with the patient's whole blood, with the plasma, and with cultures of the organism yielded similar negative results.

No agglutinating serums for meningococci could be obtained from various sources tried. A commercial polyvalent antimeningococcal serum did not agglutinate the organism even in low dilutions, but as it did not agglutinate the type strains of meningococcus I, II, III, and IV either, this observation was obviously not of much value.

A beginning was therefore made in the immunization of two rabbits with the diplococcus from the patient. The organism was first found in the patient's cerebro-spinal fluid on September 11th. It was present in films of the fluid only in small numbers, but growth was obtained, although with difficulty. As obtained from the spinal fluid, it did not grow nearly so profusely as it had when obtained from the blood stream. It behaved now, in short, as a meningococcus, and there was now no hesitation in labelling it as such. The patient died before the agglutinating serum from the rabbits was ready.

Four type strains of meningococcus (Lister Institute Collection) were tested with the serum along with the organism under examination (the "Murray coccus"). The emulsions were made in saline from growths on Thomson's medium, and the macroscopic method in a water-bath at 55° C. was used. Readings were made at intervals up to four hours. Both serum and saline controls were used. The test was not carried beyond 1 in 64 with Type III meningococcus.

Identification of Type of Meningococcus.

	Murray coccus serum: Dilutions, one in—									Controls.
	16	32	64	128	256	512	1,024	2,048	4,096	
Murray diplococcus	+++	+++	+++	++	++	++	+	+	Trace	–
Meningococcus Type I	±	Trace	–	–	–	–	–	–	–	–
Meningococcus Type II	+++	+++	++	++	+	±	±	Trace	–	–
Meningococcus Type III	++	±	Trace							–
Meningococcus Type IV	++	±	±	Trace	–	–	–	–	–	–

+++ represents complete clearing with sedimentation, and the other signs correspondingly smaller degrees of agglutination.

The organism could therefore be definitely labelled meningococcus Type II of Gordon's types.

Dock[1] has recently analysed sixty-eight reported cases of meningococcaemia, occurring in different parts of the world. In the case which he studied personally the organism was not agglutinated by the patient's serum or by polyvalent antimeningococcus serum at the second or third subculture, but at a later date was agglutinable in low dilutions both by antimeningococcus and antigonococcus serums. It was at first thought to be a gonococcus, but ultimately determined to be a meningococcus. The intermittent character of the fever, often with a definite malaria-like periodicity, was a salient feature of these cases.

Rolleston[2] also drew attention in his Lumleian Lectures on cerebro-spinal fever to these cases of meningococcaemia, which "may precede, follow, or occur without meningeal infection." He quotes some interesting observations by Netter and Dopter. Dopter's observation is that whereas before the war 96 per cent. of the cases of meningococcic meningitis were infected with the meningococcus Type A (Gordon's I and III types) a change has taken place, so that now the parameningococcus or Type B (Gordon's II and IV) is responsible for an equal, if not a larger, number of the cases. Netter[3] comments that this observation may be correlated with an increased incidence of meningococcaemia, and meningococcic manifestations in the skin, joints, and eyes.

The organism in our case, a meningococcus of Type II (British classification) or Type B (French classification) certainly showed no particular affinity for the cerebro-spinal system, as it was more than four months before the spinal fluid became infected. It is interesting that the organism disappeared from the blood stream before this terminal meningeal infection took place.

We shall not here embark on a discussion of the mutability or fixity to type of these bacteria beyond noting that the organism as obtained from the blood stream was a hardier, coarser-growing type than that obtained later from the cerebro-spinal fluid. Such a change might, of course, be merely a temporary or fluctuating variation due to environmental conditions, particularly as the hardier qualities were quickly lost on subculture.

The case emphasizes the necessity for bearing in mind the possibility of a change in the nature of meningococcal infections.

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THE CHEMOTHERAPY OF RECENT EXPERIMENTAL WOUND INFECTIONS:

*WITH SPECIAL REFERENCE TO THE ACTION OF ACRIFLAVINE.**

BY

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THE question whether localized infections can or cannot be treated effectively by means of antiseptics applied to the infected area appears still to be a subject for argument. Animal experiment might be expected to yield a decisive answer. But a difficulty, as most workers have found (for example, see Watson Cheyne, Bassett-Smith, and Edmunds[4]), is the tendency for infections in small animals to become generalized and so to escape beyond the range of action of the antiseptic. In the case of mice inoculated intraperitoneally with organisms so highly invasive as virulent pneumococci, we[2] have shown that it is possible to effect cure sometimes by means of intraperitoneal injections of various antiseptics; but this line of work has not been pursued owing to the difficulty in controlling the virulence of the infection. Recently, the infection of experimental wounds in guinea-pigs with a virulent culture of *B. diphtheriae* has been recommended as a test object for investigating the therapeutic properties of antiseptics (Braun,[1] Feiler[4]). In the first place, there is very little tendency for the infection to become generalized; and secondly, when a highly virulent culture is employed the results are decisive, since the unmodified infection is rapidly fatal.

METHODS.

Guinea-pigs of about 200 to 250 grams weight were used. An area of the skin of the abdomen was shaved. When the animal was under the influence of a general anaesthetic two parallel linear cuts, each measuring about 1.75 cm. and at a distance apart of 0.8 cm., were made through the skin in the direction of the long axis of the body, care being taken not to incise the deeper tissues. Then, by means of a stout wire bent into a loop, the strip of skin between the cuts and also the skin for about 1 cm. on either side of the incisions was raised from the deeper structures, so that pockets were produced; there was, of course, very little bleeding from the wound. About a quarter of a well grown forty-eight hours' agar slope culture of *B. diphtheriae* was then rubbed into the wound and the pockets. The animals were left for varying periods and were then treated. Treatment consisted in placing the animal on its back and pouring slowly into the wound 1 c.cm. of a watery solution of the substance the action of which was to be investigated, the wound and pockets being meanwhile swabbed out with a small

* Work done with the support of the Medical Research Council.

pledget of cotton-wool, like a throat swab, which had previously been soaked for several minutes in the same solution as that used to treat the wound. This procedure lasted for a minute and a quarter. At the end of this time any fluid which had not been absorbed by the tissues was allowed to drain away and the surrounding skin was swabbed dry. The wounds received no further treatment. (In the case of the experiments with bipp, as much of the undiluted mixture as would adhere to a swab was used to treat the surfaces of the wound and the pockets, any excess being wiped off the skin.)

The experiments were not considered as concluded until at least three weeks after the date of inoculation.

SERIES I.

Infection with highly virulent *B. diphtheriae* (strain A, recently isolated); designed to test whether effective treatment is possible. Twelve animals were inoculated. After intervals of 45, 75, and 120 minutes respectively two animals were treated with 1 per cent. watery solution of neutral acriflavine. At each period, by way of control, two animals were treated by washing the wounds similarly with 0.85 per cent. NaCl solution.

Results.—The animals treated with acriflavine (with one exception—treated after 1¼ hours—which died eight days after inoculation without having shown signs of illness previously) remained alive and well. The six controls* treated with saline were all dead within forty-eight hours.

SERIES II.

Infection with highly virulent *B. diphtheriae* (strain A, recently isolated); in order to compare the therapeutic action of acriflavine and phenol and to ascertain the effect of treatment with 5 per cent. NaCl solution. The interval between inoculation and treatment was one hour.

Results.

Reagent used to Treat Wound.	No. of Animals treated.	Result.
Neutral acriflavine 1 in 1,000	2	All survived.
Neutral acriflavine 1 in 400	2	
Neutral acriflavine 1 in 100	2	
Carbolic acid 1 in 20	2	1* died 4 days later. 1 „ 8 „ „
NaCl solution, 5 per cent.	2	Both* died within 48 hours.
NaCl solution, 0.85 per cent.	2	Both* died within 48 hours.

SERIES III.

A distinctly less virulent diphtheria infection (strain A, some time after isolation) than that in Series I and II. Interval between inoculation and treatment, one hour.

Results.

Reagent used to Treat Wound.	No. of Animals treated.	Result.
Neutral acriflavine 1 in 2,500	1	All survived.
Neutral acriflavine 1 in 2,000	1	
Neutral acriflavine 1 in 1,500	1	
Neutral acriflavine 1 in 1,000	1	
Neutral acriflavine 1 in 500	1	
Neutral acriflavine 1 in 250	1	
Carbolic acid 1 in 100	1	Died* within 72 hours.
Carbolic acid 1 in 75	1	Died* within 72 hours.
Carbolic acid 1 in 50	1	Survived.
Bipp	2	1* died within 72 hours. 1* died after 9 days.
NaCl solution, 5 per cent.	2	1* died within 72 hours. 1 died after 14 days.

SERIES IV.

A distinctly less virulent diphtheria infection (strain C) than that in Series III. Interval between inoculation and treatment, eighty minutes.

Results.

Reagent used to Treat Wound.	No. of Animals treated.	Result.
Neutral acriflavine 1 in 5,000	1	Died in 17 days.
Neutral acriflavine 1 in 2,500	1	All survived.
Neutral acriflavine 1 in 1,000	1	
Neutral acriflavine 1 in 500	1	
Neutral acriflavine 1 in 200	1	
Carbolic acid 1 in 80	1	Survived.
Carbolic acid 1 in 40	1	Died in 13 days.
Bipp	1	Died* within 72 hours.
NaCl solution, 5 per cent.	1	Died* in 75 hours.
NaCl solution, 0.85 per cent.	1	Died* in 80 hours.

* Indicates that in these animals the suprarenal bodies were haemorrhagic, which is the most constant change found in death due to diphtheria infection.

There is little doubt that the late deaths were mainly the result of the infection, although the characteristic changes were absent at this stage, since most of these animals had been obviously ill for several days after inoculation.

The results show that in highly virulent infections (Series I and II) treatment of the wound with neutral acriflavine in dilutions down to 1 in 1,000 (the highest dilution tested) regularly caused survival (one animal only out of twelve died, after an interval of eight days). Treatment with 5 per cent. carbolic acid caused only a protraction of the infection. Treatment with 5 or 0.85 per cent. salt solution was entirely without effect under these conditions as the animals so treated died within forty-eight hours after inoculation.

In somewhat less virulent infections (Series III and IV) acriflavine in dilutions down to 1 in 2,500 caused survival. Carbolic acid solution had a distinct effect. Thus in Series III carbolic acid in a concentration of 1 in 50 led to survival, but animals treated with concentrations of 1 in 75 and 1 in 100 died acutely; in Series IV, which had the least virulent infection of the four, treatment with concentrations of 1 in 40 and 1 in 80 carbolic acid led to survival or marked protraction of the infection. Of three animals treated with bipp all died with typical *post-mortem* findings; in only one was the illness protracted. In the latter two series, out of four animals treated with saline, one (belonging to Series III, treated with 5 per cent. NaCl solution) died after fourteen days; the rest died acutely.

In still less virulent infections only a proportion of animals treated with saline die acutely in two to five days with typical *post-mortem* appearances; the rest may fail to become ill or may recover, some after being obviously ill; of the latter a proportion die after several weeks. Thus in addition to the above experiments several series were inoculated with the Park-Williams strain No. 8 of *B. diphtheriae*,† which, in spite of its high capacity for producing toxin *in vitro*, is of comparatively low virulence when young cultures are tested in animals. All of the nineteen guinea-pigs treated with acriflavine 1 in 100 at intervals of forty to ninety minutes after inoculation with this strain survived. Of the nineteen controls whose wounds were washed out at similar intervals with 0.85 per cent. saline eight died (42 per cent.). This result also is in support of the efficacy of treatment with the antiseptic as compared with mere washing of the wounds.

Of course, the results recorded here do not affect the question of appropriate operative procedures in the treatment of infected wounds, nor do they bear upon the need for antitoxin treatment in cases of diphtheria in man.

The efficacy of acriflavine (trypaflavine) in the therapy of experimental wound diphtheria has also been demonstrated by Feiler[4] and by Reinhardt.[5] It has been shown that this effect cannot be ascribed to destruction of diphtheria toxin present in the culture used for inoculation by neutral acriflavine, but is the result of destruction of the bacilli (Braun[1]).

† For this culture we are indebted to Dr. R. A. O'Brien, Wellcome Research Laboratories.

CONCLUSIONS.

1. The results of treating recent experimental wounds opening into the subcutaneous tissue which have been infected with highly virulent diphtheria bacilli prove the efficiency of antiseptic therapy. Under the conditions investigated brief treatment with a suitable antiseptic (neutral acriflavine in concentrations of 1 in 100 to 1 in 1,000) has caused survival of practically 100 per cent. of the infected animals. On the other hand, salt solution (either 0.85 or 5 per cent. NaCl) similarly applied did not prevent in any instance the acute illness and fatal termination.

2. When acriflavine and carbolic acid are compared, it is found that the ratio of their therapeutic effectiveness exceeds 50 to 1. This conforms with estimates of their relative potency previously arrived at by us[3] by other methods.

3. In less virulent infections the therapeutic action of carbolic acid is evident. But bipp showed practically no action even in the latter; it would appear that the therapeutic effect of this mixture, so frequently commented on by clinical observers, must depend on some property other than an antiseptic one.

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THE DECLINE OF LITHOLAPAXY.

BY

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IN the *Principles and Practice of Surgery* (1914), by Dr. A. P. C. Ashhurst, the following passage occurs:

"The operation of litholapaxy is not now in general use because the mortality of cutting operations is less than when Bigelow's operation was introduced, and because recurrence of stone formation is frequent (18 per cent.), either because all the fragments are not removed at first, or because urinary obstruction or vesical infection are not relieved. But the primary mortality is very low (5 per cent.), and the operation may be done under local anaesthesia in very debilitated subjects. It is best reserved for such patients, provided no cystitis is present."

The book is an American one, and, though presumably representative of practice in the United States, does not necessarily speak for British surgery. But this is, in any case, strange doctrine for the country of Bigelow, and there is reason to believe that the same view is gaining ground amongst British surgeons. A short time ago, for instance, I met a keen and highly qualified junior surgeon in charge of an Indian hospital, who was doing no crushing, and told me that the operation of litholapaxy was now regarded as obsolete at home. He had spent several years in resident appointments at well known English hospitals; and one is continually hearing the same view from men who have recently passed through British medical schools. It is for this reason that I have thought it worth while to write the following note.

Thirty years ago my old chief, Mr. F. A. Southam, was using lithotrites successfully in the Manchester Royal Infirmary, and there was no doubt in those days, so far as I remember, as to litholapaxy being the operation of choice for stone in the bladder. The chief arguments now brought against it appear to be that suprapubic lithotomy can be done with nearly as great safety, that litholapaxy is difficult to learn and dangerous when performed by inexperienced operators, and that there are more recurrences after it than after lithotomy.

A statistical comparison of the results of the two operations is hardly possible in India, where for the most part only the bad cases are dealt with by the cutting operation, and I have never seen an effective comparison of British figures, which might presumably be obtainable. The impression is widely prevalent in India, however, that litholapaxy in skilled hands is much the less dangerous operation, and our figures speak for themselves, and still more emphatically if it is admitted, as we all contend, that, contrary to the impression at home, our cases on the average are far less promising than those which come to the English hospitals. We have a very large proportion of large stones and septic bladders to deal with, and we consider, moreover, that the idea which seems to prevail at home that Indian patients in general bear operation better than Europeans is entirely erroneous. It remains to be said that suprapubic lithotomy is not without its dangers. A very little disturbance of the cave of Retzius may lead to disastrous consequences.

The frequency of recurrence after litholapaxy is much exaggerated. Under proper conditions recurrences should be very rare. Experience of my own and other people's work is that they are quite infrequent, though it is unfortunately impossible to put up figures in proof of this statement. A fair test of the general result of the operation is its reputation with the public. The Indian cultivator, who furnishes the great majority of our up-country patients, is an acute judge of the practical results of surgery, as shown, for instance, in his appreciation of Bassini's operation for hernia. As regards litholapaxy, he made up his mind long ago, and there is no surer way of emptying one's hospital than by reverting to a cutting operation where crushing has formerly been in vogue. There is not only the escape from the knife but the early discharge from hospital to be considered, and it is, of course, quite common for children who have been relieved of small stones by the lithotrite in the morning to be running about in the afternoon. It is, I think one may say, the opinion of an overwhelming majority of Indian surgeons that litholapaxy in proper hands has great advantages over any of the cutting operations in all but a small percentage of complicated cases, and it would be a very great pity if the contrary view were to be generally accepted and taught in the British schools, particularly in the case of men who are destined to practise in the East. I append a list of cases treated in four representative hospitals of this Presidency. Many more extensive series have appeared in the pages of the BRITISH MEDICAL JOURNAL, but they seem to have passed too readily into oblivion.

I.—Cases operated on by Lieut.-Colonel R. W. Anthony, F.R.C.S.E., during three years and three months in 1920-23 at the Civil Hospital at Hyderabad, Sind.

	Cases.		Deaths.
Litholapaxy (including 30 perineal litholapaxies)	1,253	.....	7*
Suprapubic lithotomy	11	.....	3
Perineal lithotomy	0	.....	0

* Three others "discharged otherwise"—probably died.

This is the most noted centre for vesical calculus in this Presidency, and has dealt with an average of 464 cases a year during the last ten years. Colonel Anthony says that he looks on every case of stone as one for litholapaxy if it can be done, and that there are very few cases in which it cannot, given an experienced operator. If it is impossible to crush by the urethra in the ordinary way he performs perineal litholapaxy. He crushes stones up to about 6 ounces, and hardly ever gets one that he cannot deal with, either by the ordinary or perineal route, by means of a large lithotrite or a hammer. He apparently never does perineal lithotomy now, and only performs suprapubic lithotomy primarily from choice in patients with enlarged prostates. Thus, as he points out, his suprapubic cases must be taken largely as failed litholapaxies of a complicated nature—for example, cases in which the bladder has an hour-glass shape, or processes like the finger of a glove containing stone, or encysted stone; or those rare accidents where the lithotrite has jammed, or perforation of the bladder has accidentally occurred.

II.—Cases operated on by Lieut.-Colonel T. S. Novis, F.R.C.S., at the Jamsetjee Jeejeebhoy Hospital, Bombay, from June 14th, 1920, to December 31st, 1923.

	Cases.		Deaths.
Litholapaxy	114	.....	1
Perineal litholapaxy	0	.....	0
Suprapubic lithotomy	17	.....	5
Perineal lithotomy	2	.....	0

Note.—Of the deaths from suprapubic lithotomy, two were complicated with prostatectomy, and two developed pneumonia.

This is the chief general hospital in Bombay, and associated with the Grant Medical College. Here, also, litholapaxy is the routine operation, the contraindications quoted by Colonel Novis being very large or very hard stones, very soft putty-like stones, stricture, enlarged prostate, extensive kidney disease, and bladder growth of any considerable size. He lays stress on a routine cystoscopic examination of the bladder, both before operation, to exclude the possibility of encystment of the stone or other complications, and immediately after, or at any rate before discharge,

to make sure no fragment is left behind. The series quoted includes two cases of haemorrhage, in both of which suprapubic cystotomy had to be performed, and in one an extraperitoneal rupture was found to exist. Both these recovered. Here also the suprapubic cases are the worst and cannot be quoted for purposes of comparison.

III.—Cases operated on by Mr. A. K. Dalal, F.R.C.S., also at the Jamsetjee Jeejeebhoy Hospital, from November 29th, 1921, to March 22nd, 1924.

	Cases.	Deaths.
Litholapaxy	13	0
Suprapubic lithotomy	8	0
Perineal lithotomy	1	0

IV.—Cases operated on by Lieut.-Colonel A. J. Vernon Betts, M.B., at the Civil Hospital, Nasik, from November 1st, 1922, to October 31st, 1923.

	Cases.	Deaths.
Litholapaxy	58	0
Perineal litholapaxy	3	1
Suprapubic lithotomy	5	0
Perineal lithotomy	0	0

This is taken as a typical civil hospital with a fairly active surgical practice. The series is a small one because these are the only results for which he can personally vouch.

V.—Cases operated on by Lieut.-Colonel A. Hooton, I.M.S., at the Agency Hospital, Rajkot, from December 5th, 1920, to March 23rd, 1923.

	Cases.	Deaths.
Litholapaxy	94	2
Perineal litholapaxy	5	0
Suprapubic lithotomy	15	0
Perineal lithotomy	1	1

This also is taken as a typical civil hospital with a fairly active surgical practice.

Perineal lithotomy still has its uses (contrary to the dictum of some of the textbooks), though the occasions are not frequent. Encysted stones, or abscess associated with them, about the neck of the bladder, call for one or other of the perineal operations.

A METHOD OF DETERMINING THE PATENCY OF THE FALLOPIAN TUBES BY X RAYS.

BY

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THE investigation of certain cases of sterility involves an examination of the Fallopian tubes in order to ascertain whether they are patent. It was felt that the present methods of testing this patency are unsatisfactory, in that they are all open to the objection of causing an increased intrauterine and intratubal pressure, in cases in which, from their very nature, it is anticipated that organisms may be lurking in the uterus or the tubes, and that it would therefore be safer to employ some method of investigation which does not depend upon creating a positive intrauterine or intratubal pressure.

A method suggested itself to one of us (E. W.) after reading of Bond's experiment of the recovery, at a laparotomy, of coloured particles from the peritoneal cavity of rabbits, after their previous introduction into the vagina. If particles opaque to x rays be substituted for coloured particles, a radiogram should indicate their passage through the tube. A method was tried in which particles of barium sulphate were insufflated into the cervix uteri, and x-ray photographs were taken twenty-four, forty-eight, and seventy-two hours later. Several cases of normal multiparous women were thus investigated. The photographs did not give a shadow sufficiently dense to be really satisfactory, and at Dr. Russell Reynolds's suggestion an emulsion of barium sulphate was tried, and gave good results, particularly when general anaesthesia was employed (Figs. 1 and 2). A simple apparatus (made by Allen and Hanburys) was devised for the introduction of bismuth or barium emulsion into the uterine cavity (Fig 3). The point we wish to emphasize is that the emulsion is merely dropped into the uterine cavity and is not forced in under pressure. An anaesthetic is not necessary.

The question how the particles find their way into the tubes naturally arises. The observations that better shadows are obtained if the patient has had an anaesthetic (with the accompanying post-anaesthetic retching and vomiting), and that Bond placed the particles in the vagina and not in the uterus, suggested the possibility of aspiration being the motive power, though the original conception was that the ciliated epithelium swept the particles up. To settle the point certain experiments were performed upon animals in which bismuth emulsion was introduced into the vagina alternately with and without ligature of the Fallopian tubes.

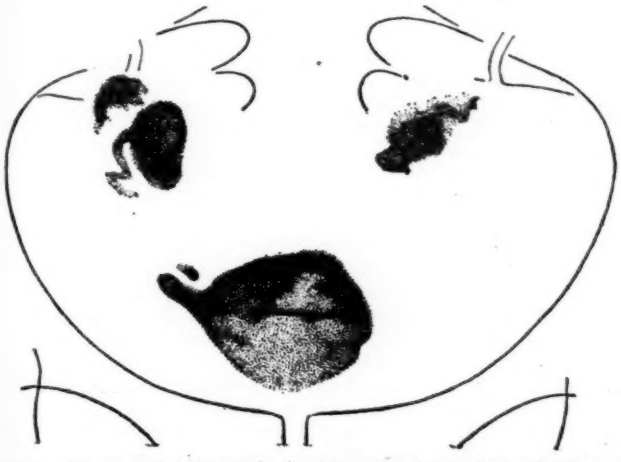

FIG. 1.—Shows shadow in uterine cavity and distal portions of tubes and fimbriated extremities. (A normal case.)

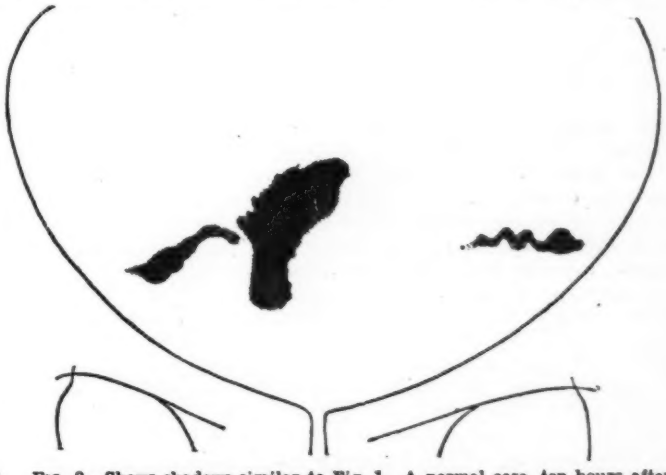

FIG. 2.—Shows shadows similar to Fig. 1. A normal case, ten hours after barium introduction.

These experiments showed that the particles do not find their way up the Fallopian tubes unless there is a free communication between the tube and the peritoneal cavity. This suggests that a purely mechanical factor, such as aspiration, is more likely to be responsible than anything in the nature of ciliary activity. If the tubal ostia are patent, the emulsion travels from the uterus to the tube, and therefore, if the shadow is seen in the tube at all, it indicates patency of that tube. In the course of seventy-two hours the whole of the bismuth or barium has disappeared. In no instance have any after-effects been complained of by the patients.

FIG. 3.—Syringe and cannula.

Another point worthy of mention is that the shadow in the body of the uterus gives a much more accurate estimation of the size of the uterine cavity, in cases of infantile uterus or other maldevelopment, than does bimanual

examination; the latter only reveals the gross size of the uterus, which may be masked by the presence of a fibroid or an unduly thick wall.

We have used the method to determine the patency of a tube after salpingostomy for tubal mole (impossible by the other methods if the opposite tube is patent), and also in a case which proved to be an instance of a double uterus. The value of the method as an aid to diagnosis in other difficult cases is obvious.

We believe also that the demonstration of the passage of particles from the uterine cavity to the fimbriated extremity of the Fallopian tube throws some light on the origin of ascending infections of the genital tract, and perhaps also on that of endometrioma of the ovary and the deposit of fragments of exfoliating endometrium on the pelvic peritoneum and surface of the ovary.

In conclusion, we wish to express our thanks to Dr. Eden and Dr. Cuthbert Lockyer for permission to investigate cases in the hospital.

THE HEART IN CHRONIC TOXAEMIA.

BY

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DURING the examination of patients suffering from infective arthritis and fibrositis, an attempt has been made to estimate the degree of involvement of the heart and arterial system in this form of chronic toxaemia. These types of cases can very frequently be traced to a local focus of infection, which most usually arises in or around the teeth, tonsils, or nasal accessory sinuses, but may later involve the colon, gall bladder, etc. Less frequently the source of infection is in the uro-genital tracts.

This paper is concerned principally with those streptococcal infections associated with cases classified as "rheumatic," or more properly "infective." No attempt has been made to include hearts poisoned—first, by acute diseases such as rheumatic fever, typhoid fever, dysentery, or malaria; secondly, by endogenous means, as, for example, excessive thyroid action or chronic kidney disease; thirdly, by an exogenous poison such as alcohol; or, lastly, by syphilis. Toxins may influence any property of heart muscle, altering its rhythm, excitability, conductivity, contractility, or tonicity. They act chiefly on those tissues which govern rhythm through stimulation of the accelerator nerves, causing sinus tachycardia, and also on the tonicity of the muscle; to a lesser extent they influence the excitability, and to a still smaller the conductivity and contractility. They may directly affect the tissue of the heart by their local action, or organisms in other parts of the body may affect the heart by their toxins. From the fact that they are set free within the body in varying quantities their effect on the heart will also vary in degree from time to time. Apparently in streptococcal infection of low virility extending over many years, the heart does not become profoundly poisoned as in Graves's disease or chronic nephritis, where myocardial degeneration is common.

That the heart has partaken of the general toxaemia may be established by physical examination.

1. *Palpation.*—Estimate first the position of the apex beat. In many cases it is found in the nipple line or outside it. Secondly, note its character. It is often diffused and rather feeble and slapping; if it is the latter, it has to be differentiated from mitral stenosis, where the left ventricle is unfilled, or from myocardial degeneration, where the left ventricle is weak. There is no left ventricular hypertrophy, except when aortic incompetence, increased blood pressure, or chronic Bright's disease exists as a complication.

2. *Percussion.*—By careful percussion the left border of the heart can be found to have moved outwards, measuring more than 3½ in. from the mid-sternal line. Increase in transverse diameter may therefore amount to 1/2 in. to 2 in., denoting myocardial weakness. The poisoned muscle fibres having lost their tonicity, there is an increase of pressure from a larger flow of blood into the heart during diastole, and an incomplete emptying is the result; in this way dilatation of the left ventricle takes place.

3. *Auscultation.*—Particular attention is to be paid—

(*a*) To the character of the first sound at the apex. It may be muffled and distant, or it may be short and sharp, or actually it may be loud. If it is short and sharp, it must be remembered that the muscle may be inflamed, fatigued, or degenerated.

(*b*) To the absence or presence of a murmer. In the early stages no murmur is audible; later, when dilatation takes place, a mitral systolic murmur can be heard—that is, a murmur of relative incompetence, due to stretching of the circular muscular fibres around the auriculo-ventricular valves. This murmur is soft, diminuendo in character, and is not conducted beyond the mid-axillary line. It is louder after inspiration and on lying down, disappearing on full expiration, cessation of respiration, and with exercise.

The toxic heart is a large heart with relative increase in the oblique diameter, and its long axis is horizontal. It is soft and atonic, with the transverse diameter measuring more when lying than standing. On examination by *x* rays it is seen to move up and down in the manner of a concertina, and its size, determined by percussion, can be verified. It is a heart of low efficiency. On standing up after resting, the normal difference of rate of 7 to 15 beats a minute is markedly increased. On exercise, the heart unduly accelerates, and returns slowly to normal; often several minutes elapse before it has regained its original rate; this should be accomplished in two minutes. During exercise the blood pressure sometimes fails to rise with the pulse rate, or even may actually fall.

SYMPTOMS.

Certain general symptoms which are associated with any form of toxaemia may be present—for example, loss of weight and of the feeling of well-being. The skin is often yellow, and may present a papular rash. There is often some mental depression and irritability of temper. Vasomotor and nervous instability is prominent, and hence tremulousness, precordial pain, palpitation, breathlessness, giddiness, exhaustion, faintness, cold feet and hands, numbness, local sweating and flushing, dermatographism, or myotonic irritability may appear. Morning anorexia, nausea associated with gastro-intestinal disturbance (for example, offensive stools and flatulence), intestinal stasis and chronic constipation, headache and derangement of the endocrine glands, and sleeplessness are sometimes present. Night symptoms are frequent.

Taking particularly those symptoms most often present the commonest are:

1. *Palpitation.*—Tachycardia often makes its appearance at an early stage of the infection, and its severity bears some relation to the degree of toxaemia. An increase of 10 to 50 beats a minute represents the usual extent of the heart's acceleration. Quite frequently the symptom passes unnoticed by the patient. It is a sinus tachycardia.

2. *Breathlessness* on even slight exertion, such as going upstairs or climbing a moderate incline, is a common complaint.

3. *Exhaustion* is a troublesome symptom which causes patients more discomfort than increased effort.

4. *Precordial Pain.*—Pain is referred to an area situated usually below the left nipple, and is commonest in women. It must be looked upon as a vasomotor neurosis, or secondary angina caused by the circulation of toxins which increase the excitability of the nervous system and sensitivity of the reflex arc, so that mild stimuli are sufficient to produce an exaggerated impression. The pain is more usual when the patient is resting and in the evening. The attack may be precipitated by emotion or other reflex cause. Hyperalgesic areas of skin and referred pain follow the usual paths as in primary angina.

The Condition of the Arterial System.—Although admittedly in many cases systolic blood pressure is found considerably raised, yet more frequently sphygmomanometric readings are distinctly lower than normal. In 43 cases observed the following were the results:

Systolic Blood Pressure.

	Cases.		Cases.
Between 180 and 190 ...	1	Between 130 and 140 ...	9
„ 170 „ 180 ...	4	„ 120 „ 130 ...	10
„ 160 „ 170 ...	4	„ 110 „ 120 ...	8
„ 150 „ 160 ...	0	„ 100 „ 110 ...	6
„ 140 „ 150 ...	1		

William Russell has drawn attention to the fact that, irrespective of the pulse wave, arteries contract and relax, due to the fibres of the muscular coat being placed transversely. This variation in size indicates the degree of hypermyotonia and hypomyotonia, and is determined by

the nervous mechanism of the arterial wall, and the blood composition or blood content acting directly on the vessel wall. In the earliest stage of toxaemia the arterial system partakes of the general atony, and there is hypomyotonia; but as the blood impurity, being absorbed from the alimentary tract, continues to circulate, it acts as an irritant or stimulant to the arterial wall, causing hypermyotonia. It is to be noted, however, that apparently considerable time elapses before permanent hypermyotonia, with changes in the muscular coat, appears, for on taking the blood pressure in these cases it is found to be subnormal, though the artery is hypertonic to the touch. On palpating the brachial artery definite local thickenings are felt in the arterial wall, small portions being affected. This occurred in 20 per cent. of cases examined.

Relation to Cardiac Irregularities.—The variety of toxic heart now under consideration does not reveal much of particular interest. Sinus arrhythmia is often present, as is generally the case in tachycardia, but it has been noted where this is absent. Isolated premature contractions, both ventricular and auricular, are of common occurrence—if anything, more frequently the latter; this may possibly be due to the action of the toxins on the thinner, less vascular muscle of the auricle. Auricular fibrillation is rare. I can only record one case which could be definitely traced to severe pyorrhoea. Willius states that streptococcic infections are one of the causes of auricular flutter, resulting in local injury to the heart muscle. It was not met with in the present series. Sino-auricular block, more common in infections of an acute nature, has not been seen, neither has pulsus alternans, which Mackenzie noticed in temporary cardiac exhaustion. Minor degrees of partial heart-block have been observed.

Electro-cardiographic changes are of considerable importance and are an indication of the damage to the heart muscle.

1. Very short rest time or diastole (T–P).
2. Diminution in value of the waves—that is, the amplitude of their excursions is lessened, and the R and T waves are flattened. (The R wave shows the state of the ventricular muscle with regard to nutrition, and the T wave the strength of contraction.)
3. Left-sided preponderance.
4. Inversion of T (lead iii).
5. Complete inversion of lead iii is a sign of severe toxaemia.
6. Lengthening of the R–T interval.

Willius states that the normal limit of the R–T interval is between 0.24 and 0.28 sec. Accepting this, then conductivity is definitely delayed in certain instances. It is only reasonable to suppose that impulse transmission is as liable to modification as any other function of heart muscle in toxaemic processes, where all the other functions may be involved. Lengthening of the P–R interval has not been noticed, but this may be explained by the fact that the auriculo-ventricular node is specialized tissue, and therefore behaves in an independent manner. It is particularly in lead iii that the signs of poisoned heart appear; S in this lead is chiefly a left ventricular event. Why should there be left-sided preponderance?

There is no sign of left ventricular hypertrophy in uncomplicated cases. It is argued that the arterial hypermyotonia, already mentioned, is responsible for this by creating increased resistance to the blood flow. The T wave negativity is due to changes in the cardiac function affecting contraction preponderance resulting from functional myocardial fatigue, thereby altering electropotential.

CONCLUSIONS.

1. There appears to be a definite connexion between left-sided preponderance and a hypertonic state of the arterial wall. When by treatment the toxins are removed, and can no longer act as irritants to the wall of the artery, left-sided preponderance disappears.

2. Coincidently T wave negativity in lead iii depends on the cardiac atony, and it tends to assume its normal deflection as the toxaemia becomes less pronounced, the heart regaining its power of sustained partial contraction, in which stretching is resisted.

3. From the foregoing it would seem that the generally accepted view that inversion of T in lead iii when it appears is a normal event is incorrect.

4. The heart responds quickly to treatment directed to the removal of the focal infection and to eliminative methods such as are carried out in spa treatment, even though the poisoning has been of long duration.

5. The importance of adequate treatment to the alimentary canal, particularly intestinal, cannot be overestimated.

Lack of space prevents the publication of illustrative cases.

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SEVERE DERMATITIS FOLLOWING ULTRA-VIOLET LIGHT.

BY

HENRY MACCORMAC, C.B.E., M.D., F.R.C.P.,

AND

H. MORELAND MCCREA, O.B.E., M.D.,

LONDON.

THE effects of the exposure of the whole body to ultra-violet light are well known, and have now an accepted place in the treatment of disease, particularly lupus vulgaris. Ultra-violet light may also be used for its general tonic effect, for it has been observed to produce a feeling of well-being in those who have undergone a course of treatment with one of the forms of apparatus now on the market. It is not, however, so generally known that overexposure may be followed by undesirable, and sometimes even serious, results, as the case recorded below very well shows.

The patient whose case we relate was an unusually healthy man aged 72 years. He informed us that he was accustomed to take in the evening what he termed an artificial sun bath. The lamp used for this purpose was placed above the bed, and as a rule an exposure of about ten minutes allowed for a single application. On October 10th, 1924, while thus engaged, he happened to fall asleep, with the consequence that the lamp continued to play over him for one hour and ten minutes. The immediate effect was a severe burning of the skin similar to that seen after ordinary sunburn, the front of the body and legs becoming at first bright red and swollen, subsequently desquamating. We were surprised to find that the back, a region that was not, so far as we can ascertain, directly influenced by the light, also became affected in a similar but slighter fashion.

Then an interval of about seven days elapsed, when further and more serious effects developed. The body, both back and front, was at this stage markedly pigmented, the right leg was swollen with in places raw areas exposing the papillae, and a similar but less pronounced condition was observed over the left leg. On October 22nd a general erythema of the trunk and extremities was noted, with urticaria, and the patient was very much disturbed by the severity of the itching, which seriously interfered with rest and sleep. Three days later, although in the interval the oedema had diminished considerably, there was an extension of the eruption to the face, which became puffy and wept in places.

So far the general condition had given no cause for anxiety, but on October 27th a marked change occurred, possibly as the result of the absorption of toxic substances from the damaged skin. There was restlessness, disturbance, and little and fitful sleep; the cardiac rhythm became disordered, extra-systoles developing. The patient continued to be gravely ill for some four days, then rallied and appeared to be out of immediate danger.

Although this satisfactory state of affairs can be recorded as regards the general condition, the integument continued to be extensively affected, the ears weeping, the face peeling freely, while the whole scalp exhibited a branny desquamation. The back was also desquamating slightly, and the skin there was still considerably infiltrated: the nails were striated and rough. The appearance of the skin of the

shins and backs of the hands was striking, it being shiny, thin, and stretched. Later, on November 10th, an extensive purpuric eruption developed on the legs, the petechiae being so numerous as to be almost confluent. This, however, was not associated with any further trouble, and indeed from this point the convalescence was uninterrupted, and to-day the patient enjoys his normal good health.

Accidents of this kind are probably extremely rare, but it is not difficult to imagine a chain of events similar to those described above occurring where ultra-violet light is used without medical advice and in a similar fashion—drowsiness, sleep, and in consequence an unduly prolonged exposure. The mishap may serve as a warning against the irregular use of a special method of treatment. Nothing, however, that has been said should be taken as discrediting a remedy of great value when properly employed.

Whether the phenomena related above should be considered representative or not we cannot say. There are at least some features which seem peculiar, and to them attention may be drawn. First, that an interval of days elapsed between the original burn and the subsequent dermatitis; secondly, the severity of the toxaemia, considerable enough indeed to place the patient's life in jeopardy and to give occasion for considerable alarm as to the outcome; and, thirdly, the fact that the skin on the back was affected, although this part of the body was not directly exposed to the ultra-violet light.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ASIATIC BILHARZIA DISEASE.

DURING the past twelve months nine cases of this disease have been reported by me on the frontiers of British India and China, where its existence had previously been unsuspected. Other cases have no doubt escaped notice.

As to the African form of bilharzia, there seems very little doubt that, originating in Egypt, the affection travelled south until at the present time the whole continent is involved and the disease has spread to the islands of the New World. The question is whether the more deadly Asiatic variety, starting as it probably did in the Far East, has gradually spread west, and whether the confines of British India are the present westerly limit. If so, how long will they remain so?

As regards Yunnan itself, there are two large freshwater lakes at Yunnan, Fu and Tali Fu, which are possibly breeding grounds for *Oncomelania hupensis*, etc. In its northern watershed arise Burmese rivers—for instance, the Shweli and other branches of the Irrawaddy, the Salween, etc., while on the eastern side the Yangtse-Kiang takes origin. If the sources of these rivers are continually being reinfected there appears to be no limit to the spread of the disease through Burma. It would appear that preventive measures should be directed towards two main channels—namely, to get rid of the disease in human beings by vigorous treatment with tartar emetic, after Christopherson's method; and to destroy the intermediate host—the snail. Both have their advocates, but the former appears the weakest link in the chain to attack, and one which offers the most promising results. At the same time much research work on the carrier snail awaits the enthusiast.

London, W.C.1. J. P. CULLEN, M.D., D.P.H.

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MYELOGENOUS LEUKAEMIA IN A NEGRO: FAILURE OF TRYPARSAMIDE.

THE case here recorded is of interest for the following reasons: (1) The rarity, in a district where the spleen is frequently enlarged from such diseases as malaria, trypanosomiasis, and bilharziasis, to find this sign due to leukaemia. (2) The fact that massive doses of an arsenic-rich compound tryparsamide failed to affect appreciably the course of the disease. The patient received a total of 12 grams (representing 3 grams or 46 grains of arsenic) by intravenous injection within a fortnight. (3) In spite of this there was no amblyopia, although similar doses employed in the treatment of cases of trypanosomiasis with central nervous infection would have almost certainly produced very serious visual disturbance. As an example may be quoted the case of an adult male who three years ago showed trypanosomes in the cerebro-spinal fluid, but who after treatment with a similar quantity of tryparsamide in the same interval of time became completely blind, but is still in excellent health with a normal cerebro-spinal fluid.

This tolerance is the more remarkable in that retinal changes and haemorrhages are commonly found in the leukaemias, and incidentally supports the view that sleeping sickness patients are predisposed by the toxin of the disease itself to the development of arsenical neuritis of the optic nerve. The following are the clinical and haematological details:

Saidi, a male aged 20, complained of fullness of the abdomen, attended with dyspepsia and some shortness of breath. The condition had developed gradually and there was no history of haemorrhages or other symptoms. He was well nourished, though obviously anaemic and somewhat flabby. No oedema or swellings of lymphoid tissue were detected, but the spleen was enlarged and filled almost the entire left side of the abdomen. Its margin was hard and nodular.

A blood count on July 24th, 1924, was as follows:

Red blood cells*	2,950,000 per c.mm.
Haemoglobin	65 per cent.
Colour index	1.1
White blood cells	485,000 per c.mm.
Polymorphs	39 per cent.
Myelocytes	33 ,,
Large mononuclears	19 ,,
Lymphocytes	5 ,,
Eosinophils	3 ,,
Mast cells	1 ,,

* There were the usual signs of deterioration together with normoblasts and megaloblasts.

After a week's treatment by rest, the white blood cells, on July 30th, numbered 346,000 per c.mm. Tryparsamide (2 grams of a 40 per cent. solution) was injected intravenously.
On August 2nd the white cells numbered 390,000 per c.mm. Tryparsamide (3 grams) injected.
On August 6th there were 454,000 white cells per c.mm. Tryparsamide (4 grams) injected.
On August 13th the white cells numbered 339,000 per c.mm. Tryparsamide (3 grams) injected.
On August 30th the white cells numbered 450,000 per c.mm.

The patient's symptoms were not alleviated, and he refused to remain longer in hospital.

CLEMENT C. CHESTERMAN, O.B.E., M.D.

Baptist Missionary Society, Yakusu, Haut Congo Belge.

RUPTURE OF SCLEROSED ARTERY.

I DESIRE to put on record the following case. The sketch showing the rupture is from an *x*-ray photograph.

A man, aged 48, received a heavy blow on the back of the right leg from some falling timber. When I saw him there was extensive bruising of the whole calf. This was treated in the ordinary way and was later massaged. The massage rapidly reduced the discoloration and swelling, with the exception of an area near the middle of the leg and just behind the internal margin of the tibia. A swelling of the size and shape of an egg persisted in this area;

it was much paler than the surrounding parts and was fluctuant. The swelling did not pulsate; it was diagnosed to be a deep haematoma. On the eighth day it was aspirated and bright red blood was removed. Firm pressure was then applied, but the swelling re-formed. Some days later it was again aspirated. A small notch could then be felt in the margin of the tibia. Pressure was again applied, but the swelling once more returned, on this occasion to a lesser degree. The leg was *x*-rayed on the sixteenth day, with the result shown.

There is an irregularity in the line of the posterior surface of the tibia, corresponding to the notch. The posterior tibial artery is in a fairly advanced condition of arterio-sclerosis; at the level of the notch the artery has been driven against the bone and has broken. The fracture of the artery is shown faintly but distinctly. The swelling ultimately subsided and there was no apparent interference with the circulation in the foot.

Birkenhead. D. L. CHARTERS, M.B.

Reports of Societies.

ENDOCRINE THERAPY.

A SPECIAL discussion took place at the Royal Society of Medicine on March 31st on endocrine therapy. Sir WILLIAM HALE-WHITE presided.

A Rational Basis for the Treatment.

Dr. W. LANGDON BROWN said that endocrine therapy might have as its object the replacement of a deficient internal secretion, in which case they were on sure ground with thyroid extract and insulin, on less sure ground with parathyroid and pituitary extract, and on very doubtful ground with other glandular preparations. But it might also have as its object the employment of some extract simply for its pharmacological action, such as adrenaline for its local vaso-constrictor effect or pituitrin for its stimulating effect on plain muscle. He would also include under endocrine therapy the use of other drugs which, by their influence on the endocrine glands, enabled those glands to carry out more successfully their normal function; he instanced iodine medication in diseases of the thyroid. As to methods of administration, apart from thyroid extract and (less constantly) pituitary extracts, the effect of oral administration was very uncertain. Nasal administration had met with a certain degree of success in the treatment of diabetes insipidus by pituitrin. Of rectal administration very little was known. By subcutaneous or intravenous injection, adrenaline, pituitrin, and insulin could readily produce powerful effects. Grafting and transplantation methods were still on their trial. It would appear that such grafts were treated by the organism as foreign bodies and became absorbed, so that their effect was only temporary. Dr. Langdon Brown went on to attribute some of the recent disagreement between the physiologist and the clinician on endocrine therapy to non-realization by some laboratory workers of the urgency of the problem which a sick man presented, and to the uncritical enthusiasm and undue suggestibility of some observers at the bedside. Indiscriminate polyglandular therapy had led certain laboratory workers to challenge the very existence of the interactions and antagonisms of the different endocrine glands in association with the vegetative nervous system, yet others had recently obtained results which supported this conception. Agnosticism had even been carried to the point of doubting whether the observed pharmacological actions of adrenaline and pituitrin had any relation to the functions of the structures from which those extracts were prepared. He could hardly believe that the body was so ill designed as that. His conclusions were that thyroid medication had the widest application of all the endocrines and was the easiest in practice. Parathyroid extract he had found of great service in tetany and gastric ulcer. Adrenaline was of little if any use in substitution therapy; it was of great use for its local effect on blood vessels and for its effect on plain muscle. Pituitary extract was of doubtful value, though it might occasionally alleviate Fröhlich's syndrome and adiposis dolorosa. It was useful in asthma and as a temporary cardiac stimulant. Insulin was of proved value in diabetes, and here he protested against the statement that if insulin was once given it must be continued for the rest of life. He had a number of patients who came under early treatment with it, and who were keeping free from glycosuria, with a normal blood sugar, although insulin had been discontinued for periods varying from three months to over a year. The existence of an ovarian hormone he regarded as proved, and it should not be beyond the wit of man to prepare a reliable extract. It was doubtful whether the present commercial preparations were active, but he had seen great benefit in thymic asthma and in a case of epileptiform seizures accompanied by temporary swelling of the thyroid. In conclusion, Dr. Langdon Brown said that he doubted whether any orchitic extract was effective.

A Protest against Some Claims of "Clinical Endocrinology."

Professor SWALE VINCENT declared that the present boom in endocrine therapy was an evil of the same general nature as the indiscriminate sale of patent medicines. But whereas in the latter case it was the members of the general public who were so continually duped by the vendor of the drug, in the former the distressing spectacle was to be witnessed of hundreds or thousands of medical men being cajoled into prescribing preparations which were nearly always of doubtful value and were often quite inactive in health or disease. He recited a list of the various extracts now obtainable, also the various combinations of extracts, with or without the addition of other drugs. He asserted that in the case of the great majority of these preparations there was no evidence that any effects whatever were produced when they were given in the ordinary way by the mouth—unless in such quantities as to serve as foods! He thought there was justification for regarding with great suspicion any report that a pharmacologically inactive substance was of therapeutic value. Discussing certain preparations singly, he said that, of course, there was no need to emphasize the value of thyroid preparations in myxoedema and cretinism. In lesser degrees of hypothyroidism and in rheumatism, rickets, mental diseases, and other conditions these preparations might also be useful on the general principle that a drug which stimulated the chemical activity of the whole body might be applicable in a variety of morbid conditions. The results of parathyroid medication were still very uncertain. Commercial preparations of ovary and parathyroid at present on the market were, according to the majority of competent observers, physiologically inactive, and in all probability useless as therapeutic agents. It had never been demonstrated in a satisfactory manner that treatment by pituitary extracts had any effect in remedying the symptoms thought to be due to pituitary insufficiency. Posterior lobe preparations were useful as drugs in the treatment of diabetes insipidus and to aid contractions of the uterus, but these uses had no relation to any known function of the organ, and were not instances of a substitution therapy. Adrenin was a very useful drug, but it would be rash to affirm that its usefulness was directly related to anything known about the functions of the adrenal body or the chromophil tissues. Extracts of ovary and testis produced no noticeable effects in health or disease when taken by the mouth; when given subcutaneously the commercial preparations appeared to be for the most part inactive, and at the best only produced a slight irritant effect. Insulin ranked with thyroid substance as a means of instituting a very valuable substitution therapy. Thus there were only two clear instances of preparations—the thyroid and the pancreas—with which it was possible to effect such a therapy; and only one of these—the thyroid—was known to produce effects when swallowed. Out of some two dozen preparations of different organs and tissues, sold by manufacturing druggists and prescribed by clinical endocrinologists to be administered in the ordinary way by the mouth, only one was of proved value. Physicians who continued to prescribe preparations for the use of which there was no scientific basis and no sound clinical evidence were guilty of conduct unworthy of modern medicine.

Dr. LEONARD WILLIAMS asked whether Professor Vincent's rather comprehensive condemnation was based on clinical experience, or on grounds purely theoretical; but the chairman would not allow the question to be pursued at that stage of the debate.

Endocrine Preparations in Veterinary Practice.

Mr. LESLIE PUGH, speaking of veterinary practice, said that pituitary extract was employed largely in obstetric work, and thyroid extract in a variety of conditions. Several disorders of the function of milk production in cattle were known and pituitary extract had been employed. Its general effect was to empty the udder more quickly, though the total milk yield was neither increased nor diminished. Thyroid extract had proved useful in the endocrine upset following cases in which the corpus luteum,

instead of atrophying after a period of activity, persisted, and thus prevented the uterine contractions that occurred at oestrum and that proved so helpful in eliminating retained discharges or infective material. He had attempted to bring about the expulsion of a mummified foetus from the uterus by the use of pituitrin and other glandular preparations, but in every case he had been compelled to dislodge the corpus luteum of pregnancy before obtaining this result.

Effect of Certain Extracts on Obesity and Growth.

Dr. H. GARDINER-HILL brought forward the results of some work undertaken in the Medical Unit at St. Thomas's Hospital on the treatment of obesity in adolescents and adults by a combination of thyroid and pituitary extracts. The adolescent cases showed, besides obesity, disturbances of growth and bone development, and disordered genital function and carbohydrate metabolism. The adult cases occurred chiefly in women following childbirth or at the menopause, or their obesity, first noticed at puberty, then became exaggerated. The cases were treated by a combination of thyroid and whole-gland pituitary extracts, given by the mouth in increasing doses. Thyroid extract alone, when swallowed, produced good results in some cases, but others showed thyroid intolerance, and this difficulty seemed to be overcome by the combined method. The effect of treatment was to render more normal the carbohydrate tolerance, and in many cases a reduction in weight was effected. Certain cases of defective growth were treated by thyroid and pituitary extracts. Three children who had a definite endocrine factor and were considerably undergrown for their age showed a distinct improvement in the rate of growth; six others, in whom no definite endocrine factor was recognized, but in whom growth was below the average and infantile characteristics persisted, also improved in rate of growth and in other respects under treatment. Many photographs and charts illustrating the progress of the cases were exhibited.

Organotherapy of the Testis.

Mr. KENNETH WALKER confined himself to discussing the therapy of the testis. The effort to obtain results from the oral administration of testicular extract had failed, and this had led to the use of testicular grafts. He referred to the work of Voronoff, who had now made some fifty or sixty transplants into the human subject from the higher apes, and claimed to have obtained valuable results. The grafts had been undertaken for various conditions—eunuchoidism, senility, neurasthenia, and sexual neurosis—and the chief benefit was said to be in the direction of improvement in the general health, increase of mental and muscular vigour, and stimulation of hair growth. Improvement was less definite in cases grafted for impotence or sexual neurosis. Other workers in this field had preferred to use human transplants, and had derived their material from newly executed criminals, patients dying of accidents, and cases of ectopia testis in which the removal of the misplaced organ was justified. It was from this last source that the speaker had himself obtained his grafts. The technique of transplantation was not difficult. Personally, he thought that Voronoff's use of a serous cavity like that of the tunica vaginalis for implantation was the best. Mr. Walker believed that vascularization and survival of the graft was an actual fact. At the same time, a steady atrophy of the engrafted material no doubt occurred, and the actual life of the transplant was, he thought, considerably shorter than that claimed for it by Voronoff. He would feel happy if he could be sure that complete atrophy did not occur within eighteen months. This, however, did not necessarily mean that at the end of that period all benefit was lost. A graft might stimulate the growth of existing testicular tissue, or the hormone supplied by the graft might tide the patient over a critical period until compensatory changes in other endocrine glands succeeded in restoring the endocrine balance. In conclusion, he said a few words about vasoligation as a means of stimulating the activity of the testis. Those familiar with Steinach's experiments on aged rats must certainly be impressed by the results of vasoligation. In human beings the results of the operation had been less certain. In many cases there had been no benefit; in some the general health and mental vigour of the patient had improved, and in a few cases the results had been still more striking. The speaker had performed Steinach's operation in some fifteen cases, and, although it was difficult to eliminate the element of suggestion, he believed that in at least half of them an improvement in general health and mental vigour had taken place. He was particularly inclined to recommend the operation in the treatment of that hopeless malady of later life, paralysis agitans.

[At this point the discussion was adjourned for a short time, and on the resumption the chair was taken by Dr. LANGDON BROWN.]

Experimental Effects of Glandular Extracts.

Mr. J. E. R. MCDONAGH described some researches on the effects of glandular extracts on animals; the object was to ascertain the effects on the blood and organs and so arrive at a basis for the chemotherapeutic employment of the drugs in man. Adrenaline caused the protein particles in the plasma to increase in number and then to go into solution, and this dual action of conduction and dehydration caused constriction of capillaries with rise of blood pressure. Insulin caused hydration of the protein particles, and adrenaline proved to be an antidote by dispersing the hydrated particles. When protein particles increased in size they were likely to be precipitated in capillaries; if in the cerebral ones, fits and convulsions ending in coma ensued; if in the lungs the consequence was the pulmonary form of shock. Adrenaline was not powerful enough in these conditions, and should be substituted by injecting glucose intravenously and oxygen subcutaneously. Adrenaline was apt to fail as a styptic because its later action of dehydration retarded coagulation. Thyroxin caused a slower dehydration of protein particles, and therefore was more valuable in the chronic stages of disease, when the protein particles increased in size and became too independent. When the particles gradually increased in size, thyroxin could break them up. Insulin was an excellent antidote against any powerful dehydrator. An acute bacterial infection might cause such profound dehydration as to call for insulin as the drug best suited to bring back to the colloidal state those protein particles which were passing into true solution. Insulin could also be employed with advantage in cases of anaemia associated with a great destruction of red corpuscles. The remaining extract with which he had experimented was ageratin (testicular extract), whose clinical behaviour suggested that it might be a phosphatide, related to cephaline. It protected an animal against infections, interfered with the antigenic action of the organic extract in the Wassermann reaction, and reduced the precipitating effect of a positively reacting serum. When once in the system this extract should prove useful as a protection against the invasion of parasite and chemical reagents.

Other Speakers.

Dr. H. CRICHTON MILLER pointed out the importance of the endocrine gland secretions from the subjective aspect, for which line of study, of course, animal subjects were not available. There was great need for evidence as to the action of the drugs on the human subject, and in this connexion he mentioned that a drug house of high standing which desired to withhold its name had placed a series of tablets for experimental trial at the disposal of the Tavistock Clinic, all labelled simply by letters of the alphabet, some of them for men and some for women, and the members of the staff and certain other medical colleagues had volunteered to consume them and report upon the results.

Dr. M. B. RAY gave an account of some ancient by-ways in pharmacy, such as the old belief in certain witch-hazels. He believed that the ductless glands exerted a powerful effect on the body metabolism, and he pictured various types of cases which were held to be significant of deficiency in one or other of these respects. He stressed particularly the relation of goitre to rheumatism in young

girls. In localities where goitre was endemic rheumatic fever, cardiac rheumatism, and rheumatoid arthritis had an abnormally high incidence.

Openers' Replies.

Dr. LANGDON BROWN thought that the discussion had proved that there was now less difference than was the case a few years ago between the clinical point of view and that of the laboratory. Some laboratory work was being done which confirmed what had already been indicated by clinical observers from their own bedside experience. He was anxious to ascertain whether Professor Swale Vincent, who had criticized the theory on the present occasion, still took the agnostic view with regard to pituitary gland secretion. He considered Mr. Leslie Pugh's contribution to the discussion of great interest. The effect of the stimulating action of the pituitary body on the mechanism of milk production in the cow confirmed observations which had been made on the human subject with regard to the sympathetic nervous system and the ductless glands.

Professor SWALE VINCENT, in reply to this question from the chair, said that to his mind the fact that one extracted an active juice from pituitary gland meant nothing more than that such a juice could be extracted. There was a similar lack of exact knowledge concerning the adrenals. With regard to the observations of Mackenzie Wallis on the blood sugar curves, he confessed that he was not favourably impressed by them, and the same was true of the data given by Professor Dixon which had also been quoted. [Dr. Langdon Brown had remarked that Mackenzie Wallis had shown that the blood sugar curve in the glycosuria of pregnancy was the same as that of pituitary glycosuria, and that Dixon had shown that the injection of ovarian extract caused the immediate secretion of pituitrin into the cerebro-spinal fluid.] Often the physiological material used was too delicate, and the doses, such as one in 500 million, were too small for conclusions to be based upon them. He contended that an attitude of greater scepticism was called for in the professing physician with regard to these matters. One was always in a position of entire ignorance as to what would have happened to a case if a certain treatment had not been adopted, and until the normal curve and incidence of a disorder was known it was dangerous to assume that a given remedy had been efficient, and it was particularly dangerous to give a mixture and attribute the result to one component of it. There were many pitfalls in therapeutics generally, and endocrinology supplied more of these than any other department.

EXPERIMENTAL ANASTOMOSIS OF NERVES.

A MEETING of the Section of Surgery of the Royal Society of Medicine was held on April 1st, with the President, Mr. H. J. PATERSON, in the chair.

Sir CHARLES BALLANCE, with Mr. LIONEL COLLEDGE and Dr. LIONEL BAILEY, presented a paper on the results of experimental anastomosis of nerves. Sir Charles Ballance first referred to the difficulty often met with in nerve injuries from war wounds when so considerable a length of nerve had been destroyed that end-to-end suture became impossible. In such cases he performed double lateral implantation of the injured nerve into a healthy nerve in the vicinity. Cases were quoted in which a very fair functional result had been attained by this procedure. In one case the middle trunk of the cervical plexus was thus implanted into the upper. Six years later the arm was wasted, but, in spite of the fact that no treatment had been given since operation, a faradic response was obtained in all the muscles of the arm and forearm except the extensores proprii pollicis and communes digitorum. In another case a gap of five and a half inches in the median nerve was bridged by double lateral implantation into the ulnar. The median intrinsics were wonderfully restored and the man was able to work. The technique of double lateral implantation was described. Three methods had been employed: (1) implantation of the cut proximal and distal ends of the nerve into small transverse incisions in the healthy nerve, each anastomosis being held in place by a suture; (2) implantation by pressing the two cut ends into longitudinal incisions into the healthy nerve, the junctions being secured by a "varnish" of muscle fibres wrapped around; (3) was the same as (2) with the addition of one stitch at each junction for added security. The speaker next passed on to the experimental work done on paralysis of the vocal cord and the results obtained by the suture of the distal end of the recurrent laryngeal nerve to other nerves in the vicinity. This experimental work, as well as that on suture of the paralysed facial to other nerves, has already been described at length in papers by Sir Charles Ballance[1] and Mr. Lionel Colledge[2] in the BRITISH MEDICAL JOURNAL. The experimental work in monkeys showed that the best results in the case of the facial nerve were obtained by anastomosis with the glosso-pharyngeal, possibly owing to the very close relationship of the motor nuclei of the two nerves as well as their association through Jacobson's nerve and the ansa of Haller. In the case of the vocal cord slight success to the extent of restoring the tone of the paralysed cord was obtained by recurrent laryngeal-descendens noni anastomosis, but very striking results were obtained by anastomosis of the recurrent laryngeal to the phrenic nerve. In the latter case the movement of the previously paralysed cord during quiet respiration became actually increased as compared with the opposite side.

At the conclusion of the paper, which was profusely illustrated by lantern slides and diagrams, cinematograph films illustrating the results obtained in monkeys in facial and vocal cord palsy by various anastomoses were shown by Dr. BAILEY and Mr. COLLEDGE. In both series the results were very striking, and the cinematographic pictures of the larynx showing the cords in rhythmical movement during respiration formed a specially beautiful demonstration.

The paper was commented on briefly by the PRESIDENT, and by Mr. W. G. SPENCER and Mr. H. S. SOUTTAR.

PAROXYSMAL RHINORRHOEA.

A MEETING of the Section of Laryngology of the Royal Society of Medicine, in which members of other Sections were also invited to take part, was held on April 3rd, with Dr. A. LOGAN TURNER in the chair, in order to discuss the subject of paroxysmal rhinorrhoea.

Dr. J. FREEMAN, director of the department of clinical bacteriology at St. Mary's Hospital, who opened the discussion, said that hay fever was only one symptom of a condition. The inherent character of hay fever was the reaction of the mucous membrane of a man who was sensitive to pollen when he met that pollen. Similarly, dust from the coat of a horse upset the "horse asthmatic," dust from a cat's fur the "cat asthmatic," and so on. But these substances could also reach the sensitive person through the blood as well as by the atmosphere. Hay fever was not a nasal disease; eye, throat, skin, and constitutional symptoms were also present. In the artificially prepared disease an urticarial rash was produced by bringing pollen into contact with a scratch, abdominal symptoms of the pollen were swallowed with food, pruritus ani if it were injected up the rectum, angio-neurotic oedema, asthma, and urticaria if injected into a vein. If the serum of a hay fever patient were put into a normal person and his skin scratched and pollen applied, a dermal reaction would be produced. The symptoms of protein idiopathy might include paroxysmal rhinitis ("nasal asthma"), hay fever, horse asthma (cat asthma, etc.), asthma, urticaria, eczema, ichthyosis, angio-neurotic oedema, food sickness (vomiting and diarrhoea), epilepsy, migraine, paroxysmal arthritis, paroxysmal colitis or nephritis, and insect fevers. The causal chain comprised the hereditary factor, protein irritants, nervous factors (which were often strongly prominent), and trauma; angio-neurotic oedema appeared at a previously damaged part of the body. Some psychical affair often started an attack, such as witnessing a motor accident or a dog fight. He held that protein idiopathy was not an abnormal nervous condition. In regard to diagnosis and treatment, of recent

[1] BRITISH MEDICAL JOURNAL, August 30th, 1924, p. 345.
[2] Ibid., March 21st, 1925, p. 547.

years he had come to the conclusion that to treat the condition by dodging the irritant and immunizing was impossible. In testing the skin reaction the thing that mattered most was easily missed, and the skin reaction did not correspond to the intensity of the symptoms. The actual substance was much better for testing than any of the extracts employed for that purpose; the accommodation of a consulting room, however, was not unlimited, yet, as regards fungi, which were common irritants, there were sixty-three varieties of dry rot alone. The immunologist, the neurologist, and the laryngologist must treat the condition from their own points of view.

Mr. A. BROWN KELLY, speaking as a rhinologist, said that the old term, "vasomotor rhinitis," was, in spite of criticisms that had been made, a correct term, as in a note in the BRITISH MEDICAL JOURNAL of the previous week[1] it had been pointed out that the suffix "itis" meant disease, and not inflammation. A nasal crisis was characterized by its not being due to infection, although it resembled a severe cold. It was marked by suddenness of onset and cessation. On probing, there was often sensitiveness of the nasal mucosa, particularly on the septum and at the anterior ends of the inferior turbinals, and the mucosa did not readily subside under cocaine. When treating nasal polypi it had to be kept in mind that the radical cure of polypi was impossible so long as vasomotor rhinitis was present. Heredity was an important causal element; a neurotic stock was particularly prone to the condition. A period of mental or physical tension often preceded an attack of vasomotor rhinitis. Toxaemia might lead to vasomotor disturbances; intestinal toxaemia was most frequent, but septic foci in the nasal sinuses and tonsils were also common.

Dr. JAMES ADAM said that paroxysmal rhinitis connoted two things—catarrh and spasm. In general they were due to toxaemia, caused by dietetic and hygienic errors. On examining 800 cases that had come within his experience, 42 per cent. began in the first decade of life, and of these over 21 per cent. gave a history of eczema. The cause of asthma was a toxaemia from carbohydrate excess; 75 per cent. of cases were cured by attention to diet and exercise, with a weekly mercurial purge. Anaphylaxis was not the most important element in asthma.

Dr. MARGARET C. TOD said that Dr. Logan Turner and Dr. J. S. Fraser had allowed her to go over all the cases of asthma treated in the ear and throat department of the Edinburgh Royal Infirmary from 1907 to 1924. There were 507 cases of asthma, and 315 operations had been performed for their relief. She had sent a simple form to each of these patients to inquire as to the results of operative treatment, and 173 had sent replies, representing 226 operations, some patients having had more than one operation; of these, 19 were cured, 76 improved, and 78 were no better. The prognosis was best in young adults. A striking result was the success of removal of tonsils and adenoids, and the comparative failure of cauterization; in most of the cases Francis's area had been the area cauterized. The conclusions were that the cure of asthma could not be promised by operation, but where the airway was blocked or septic foci were present the symptoms would be relieved.

Dr. MILLAIS CULPIN said that from the psychologist's point of view paroxysmal rhinorrhoea was only part of one big picture. As regards the nervous element in it, it was only by making a careful and skilled examination that a neurologist could say whether a person was nervous or not. The symptoms were often associated with phobias.

Sir JAMES DUNDAS-GRANT said he had found that the upper posterior part of the nasal septum was the most sensitive. Polypi sometimes produced asthmatic attacks, which were relieved by their removal.

Mr. FRANK COKE said that the persons who suffered from this condition were ordinary people, not neurasthenics. Cauterization of the septum sometimes relieved, as did the removal of tonsils and adenoids. Possibly anaphylaxis was due to some colloidal change in the blood.

Mr. T. B. LAYTON and Mr. ALDINGTON GIBB gave interesting accounts of personal experiences. Mr. C. A. PARKER noted the polishing of mahogany in furniture making as among the causes.

Dr. A. WYLIE said that the majority of cases were due to an auto-intoxication, and the general health should be treated. The most valuable drug was calomel, and gr. 1/10 every day would reduce the blood pressure. Mr. P. WATSON-WILLIAMS said that in the treatment of paroxysmal rhinorrhoea he used, locally, a 10 per cent. solution of cocaine combined with atropine gr. 1/100. Dr. J. S. FRASER remarked that this subject eminently lent itself to team work; a clear idea on it could not be arrived at by any one man.

[1] BRITISH MEDICAL JOURNAL, March 28th, p. 621.

CYSTOSCOPY.

AT a meeting of the Brighton and Sussex Medico-Chirurgical Society held on April 2nd, Dr. E. F. MAYNARD, the President, in the chair, Mr. F. E. FEILDEN read a paper on cystoscopy.

Mr. Feilden said that the best cystoscope on the market was one of German or American manufacture. It was advisable to become accustomed to an instrument of known magnification, and to endeavour to distend the bladder with a uniform quantity of fluid. Cystoscopy was one of the most important methods of exploration in urological surgery. In cases of vesical calculus cystoscopy gave a direct diagnosis and indicated the correct method to adopt for the removal of the calculus. As to whether an anaesthetic was required or not depended upon the circumstances of the case; usually no anaesthetic was required. Tubercle bacilli or *B. coli* might be found in the urine without any lesion of the kidney being present. Residual urine, a trabeculated bladder, and no evidence of urethral obstruction, usually indicated some lesion of the cord. The experiments of Dyke and Maybury seemed to indicate clearly the caution necessary in pyelography and irrigation of the kidney pelvis; cystitis due to the gonococcus was not common. In estimating the functional activity of the kidneys the most reliable test was the urea concentration one, but estimation of the blood cholesterol content appeared to be also of value. Too often cases of frequency of micturition were treated on expectant lines; early cystoscopy might prevent irreparable damage to the bladder wall. Meatoscopy was useful in the diagnosis of certain cases, but this was not so in the majority. New growth, stone, and tubercle were more common on the right side; this might be due to the fact that there were more structures crossing the right ureter than the left. A radiogram of a patient with a ureteric bougie *in situ* was a valuable means of differentiating between a calculus in the ureter and a calcareous gland adjacent to the ureter. Not infrequently the failure of a nephropexy was due to the kidney not being fixed at a sufficiently high level. A double ureter should suggest other abnormalities in the urinary tract. In catheterizing healthy ureters when the bladder was known to be infected there was little likelihood of conveying the infection to the ureters. Nephrectomy in cases of haematuria of unknown origin was only justifiable when the bleeding was unilateral, or when, by its frequency or amount, it endangered the patient's life or seriously interfered with his occupation. Lastly, Mr. Feilden said that in selected cases diathermy through the cystoscope was a most successful procedure, obviating the prolonged convalescence that was often associated with an open operation.

Malignant Growths of the Bladder.

Mr. FITZMAURICE-KELLY showed a case of epithelioma of the bladder. The patient, a woman aged 54, had no symptoms till September 26th, 1923, when a sudden large haemorrhage from the bladder occurred. This was followed by retention due to clots, necessitating catheterization. Cystoscopy on September 27th showed a papillomatous growth on the anterior wall of the bladder. At the operation on September 29th a hard flat ulcer was found just above the papilloma, and the whole thickness of the bladder wall bearing the growths with an area about 3/4 inch around was resected, and the bladder closed with drainage. Two applications of radium, 140 mg. in twelve hours,

were made on October 6th and 7th through the suprapubic opening. Now, eighteen months after the operation, the patient remained well and free from symptoms.

Dr. H. M. GALT showed in this connexion some microscopical slides of malignant papilloma of the bladder, malignant papilloma of the bladder across the pedicle, simple epithelial papilloma of the bladder, and ova of bilharzia haematobia in the bladder wall.

Dr. C. G. WHORLOW showed some radiograms taken with the Potter-Bucky diaphragm.

Dr. GEORGE MORGAN described a case of varicose veins of the prostate with severe attacks of haematuria every three months lasting two to three days, which cleared up when capsules containing turpentine (2 minims) were taken every four hours. He also quoted a case which was diagnosed by x rays as a small stone in the ureter, but which, on cystoscopy, was shown to be an old calcareous gland.

Dr. H. M. GALT thought that all villous growths of the bladder were clinically malignant and that the malignancy was purely a matter of degree; it was a waste of time to remove a small piece of growth for pathological report.

Mr. FITZMAURICE-KELLY said that cystoscopy should be performed under a local anaesthetic in males: in females an anaesthetic was not required. In cases of severe cystitis he thought that spinal anaesthesia should be employed also. In advanced tuberculous kidney, when it was important to estimate the function of the other kidney, spinal anaesthesia was very valuable when using the indigo carmine test for renal efficiency. In renal lavage it was quite safe to use a pressure of 15 inches—that is, below secretory pressure. Where there was difficulty in diagnosis between stone and tumour, a ureteric catheter could be used as a probe. Bleeding from one kidney might be caused by malignant disease; it was very important to diagnose the condition and operate at once. For this pyelography should be employed.

TREATMENT OF VESICAL PAPILLOMA.

AT the meeting of the Liverpool Medical Institution on March 5th the members of the Manchester Medical Society were guests and contributed the programme.

Mr. J. B. MACALPINE read a paper on the treatment of vesical papilloma by cystoscopic methods, combined with diathermy, illustrating it by lantern slides. He outlined his own technique, laying emphasis on the desirability of general anaesthesia in order to increase the length of the treatments, so diminishing the number of them required. In America and on the Continent, where local anaesthetics were in use, the number of treatments often exceeded twelve, whilst in his own practice it was very rare for more than four sittings to be required. Further, the burning of the base of the growth was painful, and therefore might be shirked when local anaesthesia was employed. The prepurethral approach was, he thought, universally accepted as the method of choice in all cases where the growth was small, or where little recurrences were spotted early. With extended experience, it was possible to employ it for papillomata of greater size. Even when a large growth filled a considerable portion of the bladder and rendered the examination and treatment difficult, it was usually possible for the experienced cystoscopist to select a spot where the current could be applied with perfect safety, and even though the visibility became poor as the result of cloudiness of the medium much progress could be made, with the result that in three weeks' time, when the bladder was inspected again, the growth would have shrunk and treatment could be continued under direct vision. Such treatment had proved eminently satisfactory in his experience. The results were excellent if the cases were systematically followed up for a period of two or more years. To this end the patients had to be communicated with before their treatments became due, and when many patients were simultaneously under treatment this involved a properly organized "follow-up." Such a system was illustrated in the lecture. Re-examination cystoscopies should be made at first over a period of three months and later at six-monthly intervals. This, together with the obtaining of the cases at the first onset of haematuria, was the secret of good results. Recurrences when quite early were easily and successfully treated. It was an interesting fact that return growths rarely took place on the site of the primary growth later than three months from the last treatment.

MELANOMATA.

AT a pathological meeting on March 19th at the Liverpool Medical Institution, Mr. H. C. W. NUTTALL read a short paper on melanomata. After discussing the normal distribution of melanin pigment and its relation to the pathological process, a brief description of the clinical characters and course followed. The danger arising from irritation of moles was emphasized, and the extreme rapidity of their recurrence after incomplete excision was pointed out. The histological appearances and the difficulty of deciding whether the growths were benign or malignant was next touched upon, and an analysis of thirty-five cases illustrated many of the points discussed. Mr. Nuttall reviewed the question of the origin of melanomata from either epidermal or mesoblastic cells, and showed that recent work was strongly in favour of an epidermal origin. A brief survey of the phylogeny and functions of the melanin pigment cell inclined to the view that, in white races at any rate, it was probably a vestigial structure, and therefore more liable to atypical growth.

Dr. ROBY JONES and Professor ERNEST GLYNN also read a short paper on abnormal blood groups among forty medical students, mainly discovered by cross-agglutination tests, but also by absorption tests. In the former case the serums and corpuscles of each student were tested against those of the remainder, 1,600 tests being performed by the macroscopic method, each in five dilutions. The cross-agglutination test showed 7 per cent. Group I, 30 per cent. Group II, 17 per cent. Group III, 46 per cent. Group IV. Abnormal agglutinations occurred in moderately high titre with four serums, three being Group IV, and four sets of corpuscles, three being Group IV. The blood from one Group IV student behaved abnormally both in its serums and corpuscles. Another abnormal Group IV serum was discovered by the absorption test. The relatively large percentage of Group IV students whose corpuscles agglutinated slightly was striking, and of considerable importance in blood transfusion.

PLYMOUTH MEDICAL SOCIETY.

AT a clinical meeting of the Plymouth Medical Society held on March 17th, the President, Mr. C. L. LANDER, showed a case of splenomegalic polycythaemia of many years' duration. He read a note on the relation of herpes to chicken-pox. Several members had noticed instances of the two diseases occurring together, and their further relation to poliomyelitis was considered. Mr. VELLACOTT showed a tumour of the lower part of the thigh in a man aged 27, who gave a history of six years' duration. A cystic tumour had been removed elsewhere two years before. It was generally held that the present condition was sarcomatous, and such it appeared to be to the naked eye on examination of a fragment, removed next day for microscopic report. Mr. KENNEDY showed a young man with an ulcer of the tongue, suffering also from tuberculous epididymitis and chronic phthisis; it was an example of the solitary tuberculous ulcer of the tongue. Mr. RIDDEL described a case of puerperal septicaemia, which recovered after many rigors with temperature 107°. The uterine condition quickly settled down after a large tube had been placed in the uterus to allow of frequent eusol irrigations, but septic thrombosed piles seemed to provide the source of infection which led to the rigors with hyperpyrexia. Blood cultures were negative. Other cases were shown or discussed by Messrs. ROLSTON, EDRIC WILSON, and HAMILTON WHITEFORD.

Reviews.

ANTIMALARIAL REMEDIES.

THE volume entitled *Chininum: Scriptiones Collectae Anno MCMXXIII editae*,[1] which is issued by the Dutch bureau for increasing the use of quinine, consists of translations into English of twenty-five articles on the medicinal use of quinine published in 1923. The articles contain a large amount of information concerning the production and use of quinine, and those dealing with the world supply and consumption of quinine are particularly interesting.

Figures are given of the cinchona bark production of 110 plantations which together supply about 90 per cent. of the Dutch bark. These plantations produced in 1923 bark containing 534,624 kilos of quinine sulphate; only 470,000 kilos were used in that year, and, in addition, the bark stored in Java and Amsterdam at the end of the year represented a further quantity of 239,680 kilos of quinine sulphate. These figures taken together seem to show clearly that the plantations are producing more quinine than the world can buy, and yet their present production does not represent their maximum output, for the harvest of bark has been restricted in many plantations since 1921. These facts reveal a deplorable state of affairs, since they show that the commercial demand for quinine is comparatively low, is indeed below the present output, while yet the world's real need for quinine is enormously in excess of the supply. The reason for this is, of course, that the vast malaria-stricken populations of Eastern countries which urgently need quinine live in such dire poverty that they cannot afford to buy the drug.

The true demand for quinine is indicated by figures quoted elsewhere in the volume. It was estimated that in 1920 the deaths from malaria in British India numbered 1,300,000, and that in 1923 there were 10,000,000 cases of malaria in Russia. Tables of the malaria mortality in Italy for the last half-century show the extraordinary benefit that can be produced in a malarial population by the efficient distribution of quinine. At the end of last century the deaths from malaria in Italy numbered about 150,000 a year; they have fallen steadily ever since the passing, at the commencement of this century, of laws providing for the State distribution of quinine, and deaths from malaria now total only about 3,000 a year.

The volume therefore provides very clear proof that the present production of quinine is in excess of the commercial demand, but that millions are suffering from malaria owing to lack of quinine. There appear to be only two possible remedies—either the provision of quinine in some cheaper form, or else extensive State assistance in the distribution of quinine. The latter solution is simple, and naturally commends itself to the producers of quinine. The former is much more difficult, and the only likely way of reducing the cost of antimalarial remedies seems to be the supply of some satisfactory preparation of the mixed alkaloids in a partially purified state. This policy, as is pointed out by Dr. Hofman in an article on the cinchona febrifuge, has already been tried by the Java planters. The policy was abandoned, however, because the supply of pure quinine to the relatively rich European populations is a much more attractive commercial proposition than is the endeavour to meet the needs of impoverished Oriental peoples with a cheaper mixture of the alkaloids.

How to supply the native populations for which this country is responsible with antimalarial remedies at a minimal cost is, however, one of the most obvious and urgent of imperial problems. The expenses of a thorough examination of this problem on a large scale would be trivial compared to the enormous interests involved. We are glad to note that this is one of the problems which the Malaria Commission of the League of Nations Health Organization proposes to investigate.

[1] *Chininum: Scriptiones Collectae Anno MCMXXIII editae.* Amsterdam: Bureau tot Bevordering van het Kinine-gebruik, 48, De Wittenkade. 1924. (Roy. 8vo, pp. 134; illustrated. Presented by the Bureau.)

EXAMINATION OF THE BLOOD.

THE book by Professor LOVELL GULLAND and Dr. ALEXANDER GOODALL entitled *The Blood: a Guide to its Examination and to the Diagnosis and Treatment of its Diseases* has reached a third edition.[2] First published in 1912, this book, with its straightforward account of the diseases and diseased conditions of the blood and blood-forming organs, became a favourite with both students and practitioners because of its clear description, its lavish illustrations, and its eminently practical character.

Since 1912 not a few new doctrines about the origin of blood diseases have been proclaimed: towards these the authors have for the most part adopted a cautious attitude, and have resisted the temptation to be carried away by dialectics which have no immediate practical bearing. The latest edition remains a treatise on the histological, pathological, and clinical aspects of blood diseases. The authors do not go into details of chemical or serological tests, but give references to special works on these subjects. In addition to the twenty-nine figures in the text, the book is now illustrated with sixteen beautiful coloured plates.

OPHTHALMOLOGICAL TEXTBOOKS.

THE issue of a fifth edition of MAY and WORTH'S *Manual of Diseases of the Eye*[3] is some measure of its usefulness. The first English edition was published in 1906, and besides the five editions there have been eight reprints; of the last edition alone there were four.

The book deserves the recognition it has obtained. It deals with diseases of the eye in so clear and straightforward a way that the student cannot fail to be informed and have his clinical interest stimulated by the study of its pages. Further, it is well balanced and inclusive in its statement of conditions and the means whereby these may be treated, and therefore it will remain a convenient book of reference after student days. Not the least valuable feature of the book is the profusion of illustrations; wherever a figure can usefully supplement the letterpress an illustration is provided. In this new edition the book has been carefully revised, and some new matter added. Happily this has been done without increasing the size of the book. The most noteworthy change is in the chapter on vaccines in ophthalmology, written by Dr. S. H. Browning. In that chapter of ten pages there is as succinct and faithful an account of clinical pathology and vaccine therapy in relation to the eyes as could be desired. The chapters on the ocular manifestations of general disease and on general ocular therapeutics are very good. The publishers inform us that the eleventh American edition was published simultaneously with the fifth English, that translations have appeared in Spanish, French, Italian, Dutch, German, Japanese, and Chinese, and that altogether 150,000 copies have been issued.

It is only about a couple of years ago that we noticed the last edition of the translations into English of FUCHS'S *Text-book of Ophthalmology*, and it speaks well for its vitality and popularity that in so short a time a new edition[4] should be published. The book is so well known that no lengthy notice of it is needed; anyone who seriously thinks of taking up the study of ophthalmology buys Fuchs's textbook as a matter of course. The changes in the new edition are not numerous, but the whole text has been revised and brought up to date by the inclusion of the latest work on the subject. Some of the illustrations have been redrawn and a few new ones have been added. Among

[2] *The Blood: a Guide to its Examination and to the Diagnosis and Treatment of its Diseases.* By G. Lovell Gulland, C.M.G., M.A., B.Sc., M.D., F.R.C.P.E., and Alexander Goodall, M.D., F.R.C.P.E. Third edition. Edinburgh: W. Green and Son, Ltd. 1925. (Roy. 8vo, pp. xvi + 424; 29 figures, 16 plates. 25s. net.)

[3] *A Manual of Diseases of the Eye.* By Charles H. May, M.D.New York, and Claud Worth, F.R.C.S.Eng. Fifth edition. London: Baillière, Tindall and Cox. 1924. (Demy 8vo, pp. viii + 460; 337 figures, 22 plates. 15s. net.)

[4] *Text-book of Ophthalmology.* By Hofrat Ernst Fuchs. Authorized translation from the twelfth German edition; completely revised and reset, with numerous additions specially supplied by the author and otherwise much enlarged by Alexander Duane, M.D. Eighth edition, revised. London: J. B. Lippincott Company. 1925. (Med. 8vo, pp. xv + 997; 455 figures. 42s. net.)

the improvements we note that additions have been made in the sections which deal with renal retinitis and diplopia, the neurology of the eye movements, and the untoward effects that may follow the use of serums and vaccines. The index also has undergone revision. The work is certainly one of the most authoritative on the subject with which it deals, and will, we are sure, continue to deserve the popularity it has for so many years enjoyed.

INSANITY AND LAW.

DRS. H. DOUGLAS SINGER and WILLIAM O. KROHN have conjointly written a book entitled *Insanity and Law: A Treatise on Forensic Psychiatry*,[5] which is intended to provide the physician with a better knowledge of legal practice and ideals, and the lawyer with fuller information about mental disease. The authors feel that there is no fundamental conflict between medicine and law, and that difficulties disappear and co-operation becomes possible when each understands the other, for the views are really complementary. It is with the hope of contributing to this understanding that this book has been written. The first part furnishes a description of the various types of reaction and the different forms of mental disease; the second deals with insanity in its legal aspects, the subject being considered much more fully than in the ordinary textbook. Among the questions discussed are the legal definition of insanity; guardianship; insanity in relation to contracts, marriage, tort, criminal responsibility, and testamentary capacity; the physician in court; and the possible reforms in legal procedure.

The American laws in relation to insanity differ considerably from those in this country, and the book will thus be found most useful by American psychiatrists and lawyers. The lack of uniformity of legal procedure in the various American States makes the whole matter very complicated, and the authors point out that in no other subject have the laws enacted by the different States been so divergent and conflicting. On the whole we gain the impression that the procedures for commitment in cases of insanity are more elaborate and irksome than in England, and the possibilities of voluntary treatment do not appear to have been sufficiently realized or explored. Thus the authors express the view that while, theoretically, voluntary admission to institutions for the insane is an important step in advance, as a practical procedure it does not work well, except in comparatively few instances. Experience of the voluntary boarder system in this country has, of course, led to an entirely contrary view. The book is a balanced and judicial contribution to legal psychiatry, and it is obvious that the authors are thoroughly conversant with their subject in all its aspects.

FOUR BOOKS ON BACTERIOLOGY.

BACTERIOLOGISTS, as a class, are prolific authors, and we have here to direct the attention of readers to four new books on the science of bacteriology. Literary fertility is to some extent a natural consequence of the bacteriologist's particular calling. As a rule, early in his career he engages in research work which becomes published in scientific journals, thereby initiating him, while still youthful, into the dignities of authorship. But we do not wish to imply that writing becomes a habit and ends in the appearance of books, for other reasons are to be found for this plenitude. It must be remembered that bacteriology is a new science, continually cultivating its territory and enlarging its dominions. Fresh statements of opinion are necessary, therefore, at comparatively short periods: former views must be revised, inaccuracies corrected, and knowledge recently gained must be incorporated in new books, or in later editions of successful textbooks, which began perhaps as slender brochures but grow eventually to imposing volumes. Because, also, of the relative instability of this science it happens frequently that those whose duty it is to teach bacteriology find themselves in disagreement with the grammar of contemporary textbooks or feel that it might be presented in a more convincing or a more convenient fashion; the books do not contain quite the doctrines they themselves would teach and the facts they would wish their students to learn. Hints of this uneasiness are ill concealed in the humblest of prefaces, and in others the author boldly admits this to be the justification for the appearance of his book.

Influences such as these are responsible for the prominence which bacteriology gains in publishers' catalogues. We believe that the science benefits from the generous collection of books from which students may choose, and that such books as the four we have lately received form a useful addition to the bacteriological library.

The book which Professor T. J. MACKIE and Dr. J. E. MCCARTNEY have written is entitled *An Introduction to Practical Bacteriology*,[6] and is intended as a guide to bacteriological laboratory work. It is useful to have a book which deals only with the technique of laboratory work. Textbooks which set out to provide a complete exposition of such a science as this rarely give sufficiently detailed advice as to how various tests should be performed. In the descriptive textbook the thread of the narrative must not be interrupted too frequently by paragraphs of small print, and therefore the practical instructions become condensed in a preliminary chapter or relegated to an appendix. We welcome a practical handbook; it serves a very useful purpose because it gives to students precise directions about the use of the microscope, the staining and cultivation of microbes, and the identification of the living agents of infectious disease. The book which Professor Mackie and Dr. McCartney have written, though designed for the use of medical students, will certainly be useful also to more experienced laboratory workers because of its references to recent improvements in technique. The authors have handled difficult subjects very skilfully; questions not easily understood by the student, such as the magnification and numerical aperture of objectives, and the standardization of media by the hydrogen-ion concentration, are carefully explained. The book is of convenient size, well arranged, adequately indexed, and provided with a number of blank pages for notes at the end. It is likely to be a popular book with students.

Professor J. W. BIGGER's book is entitled a *Handbook of Bacteriology for Students and Practitioners of Medicine*.[7] It appears from the preface that Dr. Bigger's students have often complained that existing textbooks are too much encumbered with unessential matter, and the student does not find it easy to distinguish between the more important and the less. We believe that murmurs of discontent have been heard elsewhere than in Dublin. A medical student is happiest with a book which will tell him clearly all he needs to know in order to satisfy his examiner. He hates superfluity, and also despises "cram" books, to which, however, necessity may compel him to resort. Dr. Bigger has succeeded in writing a book of about four hundred pages which gives all a medical student is likely to be asked about bacteriology. We have looked through it carefully and do not find that anything of importance has been omitted. It is illustrated with five coloured plates and sixty-six figures. Medical students, in Ireland at any rate, will have to think of some new excuse if in the future they fail to pass the bacteriology examination.

Principles of Bacteriology[8] is the title of Dr. ARTHUR EISENBERG's textbook. It is a useful book for nurses or for those studying bacteriology who have not had a medical training. A special feature which must serve to recommend it to this class of reader is that all difficult technical

[5] *Insanity and Law: A Treatise on Forensic Psychiatry.* By H. Douglas Singer, M.D., M.R.C.P.Lond., and William O. Krohn, A.M., M.D., Ph.D. Philadelphia: P. Blakiston's Son and Co. 1924. (Demy 8vo, pp. xii + 437. 6 dollars.)

[6] *An Introduction to Practical Bacteriology, as Applied to Medicine and Public Health.* By T. J. Mackie, M.D.Glas., D.P.H.Oxford, and J. E. McCartney, M.D., D.Sc.Edin. Edinburgh: E. and S. Livingstone. 1925. (Cr. 8vo, pp. 297; illustrated. 8s. 6d net.)

[7] *Handbook of Bacteriology for Students and Practitioners of Medicine.* By Joseph W. Bigger, M.D.Dublin, F.R.C.P.I., D.P.H. London: Baillière, Tindall and Cox. (Demy 8vo, pp. xv + 413; 66 figures, 5 plates. 12s. 6d. net.)

[8] *Principles of Bacteriology.* By Arthur A. Eisenberg, A.B., M.D. Third edition. London: Henry Kimpton. 1924. Sm. 8vo, pp. 216; 40 figures. 10s. 6d. net.)

words are explained by giving a translation of the Greek or Latin from which the word is derived. In a short, semi-popular book of this sort the main difficulty is not what to put in, but what to leave out, and, on the whole, the author has been wise in his selection. The book would have been more accurately named "Principles of Medical Bacteriology," for it concerns itself entirely with pathogenic germs. It is true that it contains paragraphs on the bacteriology of air, water, soil, and milk, but very little space is given to these subjects, and the only germs to which the author refers are such as cause disease in man.

Pathogenic Microörganisms: A Practical Manual for Students, Physicians, and Health Officers is a popular American textbook of bacteriology written by Drs. WILLIAM PARK, ANNA WILLIAMS, and CHARLES KRUMWIEDE. It has grown with the times. The first edition was called *Bacteriology in Medicine and Surgery*, and the present title appeared first with the third edition. In the succeeding editions which have been called for new matter has been added and the old rewritten, so that the eighth edition now presented[9] bears little resemblance to the original volume. It differs from its immediate predecessor chiefly in that alterations in nomenclature have been made in order to conform with the classification adopted by the Society of American Bacteriologists. It contains also a valuable section on experience gained in New York with active immunization against diphtheria, and it includes the new views which have recently been put forward on the etiology of scarlet fever, measles, typhus fever, and tularaemia. This is a much more comprehensive book than either of the other three reviewed above. It contains over 800 pages and is illustrated with 211 engravings and 9 full-page plates. Its substantial proportions appear to be a product of American team work, for in addition to the three authors whose names appear on the title-page, those of three other doctors are mentioned in the preface, who, because of their specialized knowledge, have been asked to revise or rewrite particular chapters of the book.

JACOBEAN DIVAGATIONS.

To the far-flung many who were medical students at Edinburgh University within the past forty years the *Divagations of a Doctor*,[10] from the pen of Dr. ALEXANDER JAMES, will be very welcome. For all who know him are loyal "Jacobites": to them, while in "Auld Reekie," he was James I and Last; there was no room for any other James. "These divagations" (he says himself) "of a septuagenarian Æsculapian are dedicated to his brother Æsculapians present and future, obviously without their permission, but with his assurance that at any rate a perusal can do them no harm." This mildly negative claim upon the attention of his fellow club members is characteristically modest; for no one can read his book without being the better of it. Gifted as he is with the power—none too common—of writing both good English and good sense, and hating (as he honestly and openly does) all millennium-mongers, his papers on "The doctor in evolution," "Tubercular disease and germ," "The school teacher in evolution," "Juvenile crime," "Socialism in evolution," "State-made millenniumitis," and "Individual and communal evolution," are well worthy of being read and digested by all medical practitioners throughout the length and breadth of Great Britain; while "The Æsculapian oration on its 150th anniversary" is provocative of healthy chuckling. But whether it be prose or verse, he never "jokes wi' deeficulty," and when one reads even in cold print his "Golfing song" or "Stop percussin', Jock," the kindliest memories crop up of his inimitable singing of them, and the characteristic play of features and hands that drove the points home.

[9] *Pathogenic Microörganisms: A Practical Manual for Students, Physicians, and Health Officers.* By William Hallock Park, M.D., Anna Wessels Williams, M.D., and Charles Krumwiede, M.D. Eighth edition, enlarged. Philadelphia and New York: Lee and Febiger; London: Baillière, Tindall and Cox. 1924. (Med. 8vo, pp. x + 811; 211 figures, 9 plates. 30s. net.)

[10] *Divagations of a Doctor.* Being a Commixture in Prose and Verse, Medical and Lay, Grave and Convivial, Social and Personal, Polite and Vulgar. By Alexander James, M.D. Edinburgh and London: Oliver and Boyd. 1924. (Post 8vo, pp. 192. 6s. net.)

NOTES ON BOOKS.

DR. G. DELAMARE, who is professor at the Constantinople Faculty of Medicine, has devoted an interesting and richly documented monograph to the study of respiratory spirochaetosis.[11] The condition is defined by him as the series of nasal, laryngeal, tracheo-bronchial, alveolar, and pleural manifestations of a catarrhal, haemorrhagic, suppurative, fetid, or gangrenous type caused by the presence in the respiratory tract, and more rarely in the pleura, of a large number of spirochaetes which have been identified with *S. buccalis* (Cohn, 1875), *T. dentium* (Koch, 1877), *S. vincenti* (Blanchard, 1906), or *S. bronchialis* (Castellani, 1907). After an historical sketch, in which the author rightly attributes the first satisfactory description of the disease to Castellani, an account is given of its geographical distribution; it is shown that bronchial spirochaetosis, far from being exclusively a tropical disease, may be found in all latitudes in a sporadic form. The following sections deal with the etiology, parasitology, experimental pathology, epidemiology, morbid anatomy, symptomatology, diagnosis, prognosis, and treatment. It is noteworthy that arsenical preparations, which have such a rapid and striking effect in infections with Vincent's organisms, are often disappointing in bronchial spirochaetosis. A copious bibliography of recent literature is appended.

In the BRITISH MEDICAL JOURNAL of January 24th, 1925 (pp. 179–185), a very full report was given of the joint meeting of the Sections of Medicine and Electro-Therapeutics of the Royal Society of Medicine, held on January 16th, when a preliminary report on the electronic reactions of Abrams, with special reference to the emanometer technique of Boyd, was presented by Sir Thomas Horder on behalf of a small investigating committee of which he acted as chairman. The other members were Dr. C. B. Heald, medical adviser to the Director of Civil Aviation; Lieut.-Colonel H. P. T. Lefroy, head of Wireless Research at the Air Ministry; Mr. W. Whately Smith, employed as a physicist at the same Ministry; and Mr. M. D. Hart, employed as a physicist at the War Office. The committee at a later stage had the co-operation of Mr. E. J. Dingwall, research officer to the Society of Psychical Research, and was assisted by Mr. H. St. G. Anson, recommended by the authorities of Faraday House for his ability to undertake original work in experimental physics. The full text of the committee's preliminary report has now been published in pamphlet form.[12] The report is arranged under the following headings: Foreword; introductory; historical and descriptive, the claims of Abrams; critical review of previous investigations and comments; the genesis of the present inquiry; the *prima-facie* evidence; the nature of the problem; the first phase of the inquiry; the second phase, crucial tests; conclusions; afterword. There are two appendixes, one being a report by Mr. Whately Smith on emanometer tests conducted with Dr. W. E. Boyd at Glasgow in June, 1924, and the other an account of a second series of experiments in Glasgow at the end of August.

A report of the lecture Professor René Cruchet of Bordeaux gave under the auspices of the University of London at the end of February was published in our issue of March 7th (p. 474), and we are indebted to Professor CRUCHET for a copy of a book entitled *Les États Parkinsoniens*[13] by himself and Professor VERGER, with the assistance of Dr. Anglade and Professor Hesnard. The general character of the valuable work done in the Bordeaux School of Medicine will have been gathered from Professor Cruchet's lecture. The volume consists of the text of eleven lectures delivered during the summer session last year; they were founded upon researches which were commenced in 1919.

Medical Electricity for Nurses,[14] by Dr. HAROLD WIGG, radiographer to the Royal Buckinghamshire Hospital, is a useful little handbook. Since, to-day, many small hospitals have well equipped electrical departments it is necessary that nurses should acquire a working knowledge of medical electricity. This education cannot be gained without some knowledge of the principles of electricity. Dr. Wigg supplies such information in simple and popular language. He describes also the different forms of apparatus used in electrical diagnosis and treatment. The book is well illustrated.

[11] *Spirochétoses respiratoires stomatogènes.* Par G. Delamare. Paris: Masson et Cie. 1924. (Post 8vo, pp. 145; 14 figures. Fr. 7.)

[12] *A Preliminary Communication concerning the "Electronic Reactions" of Abrams, with special reference to the "Emanometer" Technique of Boyd.* London: John Bale, Sons and Danielsson, Ltd. 1925. (Extra post 8vo, pp. 55. 2s. 6d. net.)

[13] *Les États Parkinsoniens et le Syndrome Bradykinétique.* Par Henri Verger et René Cruchet. Paris: J. B. Baillière et Fils. 1925. (Demy 8vo, pp. 204; 24 figures.)

[14] *Medical Electricity for Nurses.* By Harold Wigg. London: Scientific Press, Ltd. 1925. (Cr. 8vo, pp. viii + 80. 3s. 6d. net.)

PREPARATIONS AND APPLIANCES.

Ethidol.

THE molecule of ricinoleic acid, the acid radicle of the principal constituent of castor oil having the ethylenic double bond, combines directly with iodine. The compound thus produced (iodoricinoleic acid) presents active iodine in true organic combination. In the form of a calcium salt it has been used with success in the treatment of goitre, rheumatoid arthritis, and some skin affections. The ethyl ester of the same compound is now being manufactured by Messrs. Burroughs Wellcome and Co. as an alternative to the calcium salt, and is sold under the name of ethidol. It is a liquid of oily character, but hardly to be called viscous; by virtue of its chemical constitution it is more easy of absorption than any corresponding compound derived from other fatty acids. It is suitable for intraglandular injection, and may also be used as an inunction. It is not injured by heating to the temperature of boiling water for sterilization.

An Electric Bed-warming Apparatus.

The Medical Supply Association (167-185, Gray's Inn Road, London, W.C.1) has manufactured an electric apparatus for applying warmth to patients in bed. The apparatus consists of two shallow boxes in which are fitted electric lamps, which are covered on one surface with a wire guard, which prevents the patient coming in actual contact with the lamps. These boxes are placed right and left of the patient, and extend the whole length of the bed. They are held together at the bottom by a light bar.

BRITISH EMPIRE EXHIBITION, 1925.

MEDICAL SECTION.

WITH the commencement, in the first week in May, of the second year of the British Empire Exhibition at Wembley, there will be thrown open to the general public one of the most comprehensive and detailed displays of the steps in the evolution of modern medicine and hygiene that has yet been devised in any country.. The Ministry of Health, which is responsible for the organization of this section, has received active support from a large number of public health authorities, museums, and commercial firms. It has set out to trace the story of medicine through past ages, to illustrate the present, and to anticipate the future, so that the various exhibits may appear as episodes in a drama rather than as curiosities on a museum shelf. Besides a large number of models of various kinds, and an extensive collection of objects of historical interest, there will be even more striking illuminated diagrams than those which characterized the Tropical Health Section in last year's Exhibition; summaries of the exhibits will be provided on the walls, so that visitors will have their attention drawn to the most important subjects illustrated. A small guide book to be published in connexion with this section will serve as a memento, and also have an educational value. That part of the British Government Pavilion which was devoted last year to the Navy, Army, and Air Force has been taken over this year by the Ministry of Health for its section, and the three halls will depict medicine in the past, the present, and the future.

Medicine in the Past.

On entering the Exhibition some primitive ideas of preventive medicine will be suggested by a life-size tableau of an African "medicine-man," from which the transition is natural to a collection of charms, votive offerings, and amulets, ranging from the prehistoric to rheumatism rings of the present day. It is perhaps significant that this part of the Exhibition is entitled "past—present," with the possible implication that there still remain vestiges of the ancient superstitions in some popular conceptions of disease to-day. The total contents of this section will be indicated by an illuminated kaleidoscopic apparatus, continuously calling attention in the space of a minute or so to the outstanding exhibits. Another life-size tableau will illustrate the days of the mediaeval alchemists, one of their "kitchens" being shown completely equipped with the actual crucibles and other apparatus in which the lotions and elixirs were compounded, and researches made in the transmutation of metals. This tableau will be balanced, so to speak, by another showing a modern bacteriologist at work in his laboratory, and a public health chemist engaged in water analysis. The historical aspects of certain diseases, such as leprosy and malaria, will also receive consideration. In connexion with the latter disease there will be a complete exhibition of models of all the biting insects of England, in addition to the mosquito. Maps will show the extent of malaria in this country in the past and the present, and the stages of the evolution of quinine treatment will be demonstrated. In the case of leprosy the story of the preparation of the ethyl esters from chaulmoogra oil will be told. In one bay dealing with plague will be shown the various procedures adopted to prevent such diseases invading England; mooring cables with rat-guards attached, and the various other appliances used by port sanitary officers, will be represented. Special attention is paid to louse-borne diseases, such as typhus and relapsing fever; the improved disinfectors used in the war in various countries will be contrasted with the most modern achievements of bacteriology. A collection of old toilet requisites, dug up in the London area, and largely concerned with the care of the hair, will illustrate another side of the prevention of disease.

Modern Medicine.

In the hall devoted to modern medicine the first collection is concerned with infectious diseases, and an interesting group of allegorical paintings of such diseases as typhoid and plague has been brought together. The intention is to illustrate the importance of the control of these diseases by isolation, and secondly, the possibility of producing immunity in a certain number of cases. A model of the general lay-out of a modern fever hospital has been constructed, and the problems associated with smallpox and vaccination are also dealt with. Particular interest will doubtless be taken in what may be termed the "Lister exhibit," illustrating the conquest of sepsis. An illuminated model of the original ward in which Lister worked has been prepared, special attention being paid to perspective so as to introduce the atmosphere of reality, which is so often lacking in models of this kind. A collection of the instruments of this period with their wooden handles will indicate some of the advances that have been made in surgery in consequence of Lister's work. Several copies have been obtained of old paintings of operations in ancient days, and the surgery of those times will be further thrown into relief by the contrast provided by a full-size model of a modern operating theatre with all the most recent improvements. A novel and striking representation is being prepared to indicate the increasing possibility of utilizing products derived from the household refuse collected in town cleansing. Filtration and purification processes of water will be demonstrated, and a model will furnish striking illustration of the fly peril. In the centre of this hall there will be several working models illustrating modern methods of water purification and sewage disposal, including a complete lay-out of sewage disposal works. The water supply of Liverpool and other towns will be depicted by photographs, and some of the supply pipes of old London will also be shown.

Medicine To-day and To-morrow.

In the third part of the Exhibition the Ministry of Health will attempt to indicate the lines along which further progress in health is likely to run, as well as to illustrate the more recent improvements in the prevention and treatment of disease. Considerable attention will be devoted to maternity and child welfare; the model of a maternity ward has been prepared, and a considerable collection made of clothing worn by children at different historical periods. A comparison of the shoes of ancient times with those of the present will suggest that the modern rivalry between square and pointed toes is of very ancient origin; the evil effects of imperfectly fitting shoewear will also be shown. Different varieties of children's feeding-bottles, including Roman and mediaeval types, will be displayed. The value of sunlight in respect of human growth and health will be illustrated by comparison with plant life. Dental problems will be represented by models of teeth, healthy and diseased; the need

of dental care in childhood will be graphically shown, and a series of tooth forceps used through the ages, including ancient Egyptian times, is presumably meant to convey a cautionary message. Progress in orthopaedics will be shown by various models, illustrations, and apparatus. The modern tendency to provide more open air for children in their educational hours finds expression; a model of an open-air classroom will be shown, and the way to secure more accommodation for open-air games will be indicated. Another section will be concerned with the training of mentally defective children in various grades, showing the great advance that has been made in this matter and the encouraging results that are being obtained. A further exhibit will illustrate propaganda work against venereal diseases, and the prevention and treatment of tuberculosis will receive, as is right, very considerable attention. The various possibilities of sunlight treatment will be demonstrated, and a model will be shown of a sunlight treatment centre, together with the provision of artificial sunlight by means of ultra-violet ray lamps. Other illustrative models in this connexion will include the general lay-out of a sanatorium, revolving shelters, and sanatorium wards.

The smoke prevention exhibits of the last exhibition will be extended to teach the deleterious effect of coal smoke, not only in disintegrating stonework, but also in cutting off rays of light from human beings. Improvements in town planning will be shown by models of good and bad plans; also diagrammatic representations of slum areas that have been abolished, and of good and bad principles in house construction generally. It may here be mentioned that the Minister of Health is chairman of a committee which is arranging a great housing display occupying over 60,000 square feet in the Palace of Engineering. Besides illustrating various types of working-class houses, week-end cottages, and bungalows, this will include sections of walls and component parts to demonstrate improvements in construction designed to make these houses far healthier than those of the past. In a section dealing with trade diseases, attention will be paid to diseases notifiable under the Factories Act; one exhibit illustrates how infection was spread by "shuttle-kissing" under old conditions, and how these shuttles have now been replaced by others in which there is no possibility of the thread being sucked through by the workers. Gas poisoning in factories and mines will be dealt with, and the apparatus used in prevention and rescue work will be shown. The food models will probably cause general interest: an attempt will be made to indicate what people should eat at various ages, and model diets for different meals will be realistically displayed. Other models and exhibits will be devoted to vitamins, the production of pure milk, clean meat, and the present thorny problems of food preservation.

CEREAL FOODS AS A FACTOR IN RICKETS.

THE Medical Research Council has just issued a report by Professor Edward Mellanby on the effect of cereals and their interaction with other factors of diet and environment in producing rickets,[1] in which he describes experiments made with the object of developing this aspect of the problem of rickets. As he observes in his introduction, probably in no physiological activity so far studied do action and reaction of dietetic elements stand out more prominently than in the growth and hardening of bone.

This research proves that the various common cereals —oatmeal, wholemeal flour, white flour, rice, barley, etc.— have different effects on the growing animal, and that such differences cannot as yet be explained on the basis of their known constituents. Evidence is brought forward showing that some cereals and cereal products have a strongly adverse influence on bone calcification, and that this varies, not only with the amount and type of the particular cereal eaten, but with the general make-up of the diet. The "cereal action" can be completely antagonized by the antirachitic vitamin, especially by cod-liver oil, and to some extent also by exposing either the animal or the cereal food to ultra-violet radiations.

Many of the experimental results detailed in the present report have already been described by the author when making communications to various scientific bodies; for example, in the Oliver-Sharpey Lectures before the Royal College of Physicans in 1922, and in his paper read to a joint meeting of the Sections of Physiology and Diseases of Children at the Glasgow meeting of the British Medical Association in the same year, when opening a discussion on the etiology of rickets.[2] Since then he has endeavoured to follow the sequence of events, and more especially to find the substance or substances in cereals which under some conditions interfere with the calcification of bone and the proper functioning of other tissues. The task, he says, has proved more difficult than he supposed, for its solution does not appear to depend, as seemed at first likely, upon some well recognized dietetic factor or factors. Although the research is still incomplete, he reports progress at the present stage for three reasons. One is the practical importance in dietetics of the facts so far observed; the second is because they put into better perspective the significance of the phosphorus and calcium elements of the diet in the etiology of rickets; the third is the emphasis they give to the great importance of balance in dietary constituents. On this last point he writes of the "constant battle going on among dietetic elements as regards the calcification of bone, some substances stimulating and others preventing the process; and the ultimate structure of the bone is the outcome of the conflict."

Most of the experiments here recorded were carried out at the Field Laboratory, Sheffield University, in which the conditions were more uniform than those at Cambridge, where much of the earlier work was done. Professor Mellanby first gives an account of experiments demonstrating the relative rickets-producing effect of different cereals, and then describes some of the attempts made to discover the cause of these differences. Later, he marshals the evidence showing that this cereal effect can be modified in varying degree, not only by other constituents of the diet, but also by ultra-violet radiations.

With a diet deficient in antirachitic vitamin, increasing the amount of cereal brings about worse-formed bones if other factors of diet and environment remain constant. Of the different cereals examined, oatmeal, contrary to what might be supposed, has by far the worst influence on bone formation. Next come maize and barley, rice, and wheaten flour, the last having the least harmful effect. The germ of wheaten flour, if enough is added, also interferes with bone calcification.

Of the foodstuffs containing the antirachitic vitamin which antagonizes "cereal action," cod-liver oil is by far the most effective, and quite small quantities suffice. Whole milk in fairly large amount, and egg yolk, are also potent antagonists; but butter, unless accompanied by a fairly high calcium intake, is of comparatively small value. Both calcium carbonate and calcium phosphate work well in conjunction with the vitamin of butter fat. The antirachitic effect of separated milk is more potent than can be accounted for by its calcium content alone. Even when the diet is greatly deficient in antirachitic vitamin the development of rickets is hindered to some extent by increasing the calcium content, preferably by addition of the carbonate.

As regards the means whereby cereals bring about this rickets-producing effect, Professor Mellanby suggests that two different kinds of action may be at work:

"In the first place that part of the cereal which is actually incorporated in the growing organism and leads to its growth is probably partially responsible. In this way the carbohydrate and the protein would be involved. In the second place there is present in the one cereal tested—namely, oatmeal—a chemical grouping which, after digestion and absorption of the grain, is capable of interfering with bone-calcification. After many attempts had been made to explain this action in terms of known constituents of cereals and to find out the nature of the causative agent or agents, some evidence has finally been obtained which suggests that a substance in oatmeal which interferes with the laying down

[1] *Experimental Rickets.* Special Report Series, No. 93. London: H.M. Stationery Office. 1925. (3s. 6d. net.)

[2] BRITISH MEDICAL JOURNAL, November 4th, 1922, p. 849.

of calcium in bones is associated with the fatty acids. This substance can be obtained by saponification of oatmeal with soda and extracting the acidified mixture with petrol ether. Further work is necessary to establish the nature and properties of this cereal constituent and also to determine its mode of action."

A little further on in the summary of results he writes:

"Since the antirachitic vitamin supplies in the food and exposure of the animal or of the food eaten to ultra-violet radiations tend to conserve ingested calcium and phosphorus for the use of the growing organism, and since the cereals work in the opposite direction, it is evident that the amount of calcium and phosphorus in the food is of but secondary importance in the control of the deposition of these elements in growing bone, although, of course, there must be a sufficiency of these salts for the formation of perfect bones. In view of the evidence of interaction and balance among food constituents provided by this investigation, the value of the expression 'optimum calcium content of a diet,' so commonly used in dietetic descriptions and discussions nowadays, must be doubted. The optimum varies every time the other elements of the diet are changed."

In conclusion, Professor Mellanby touches briefly on two practical points of dietetics which arise out of the experimental findings set out in this report. One is the question, Why, if oatmeal is so detrimental to bone formation, fine races of men have been reared on diets of which this cereal forms a large part? The other is, What is the bearing of these experiments upon the wholemeal *versus* white bread controversy? In answer to the first question, the author suggests that the diet of the oatmeal-eating people has also included much of foods rich in antirachitic vitamin (milk, eggs, and fat fish); while in tropical countries, where cereals such as rice and maize form a large part of the diet, the sunlight is no doubt an important factor in antagonizing the cereal effect. But whatever be the explanation, the work here recorded shows that perfect bone formation can be obtained even when large quantities of oatmeal are eaten, provided the rest of the diet is adequate. In regard to the controversy about wholemeal bread and the nutritive properties of the wheat embryo, Professor Mellanby thinks this question is of but little practical importance from the point of view of rickets. To those who ascribe special virtues to various grains because of their calcium and phosphorus content, his experimental results, he suggests, ought to bring a special message of caution.

Nova et Vetera.

WILLIAM LEVETT.

On January 17th, 1782, Dr. Johnson wrote, "Our old friend, Mr. Levett, who was last night eminently cheerful, died this morning," adding, "so has ended the long life of a very blameless and a very useful man." Thus did Johnson epitomize the character of his apothecary companion, William Levett, whom he had befriended for close on forty years, and who for a long period of time had been one of the inmates of the lexicographer's home, "where Mr. Levett occupied his post in the garret," says Boswell.

The occasional references to Levett in Boswell's *Life of Samuel Johnson* and an article in the *Gentleman's Magazine* for February, 1785, give indications from which interest may be gleaned, and an endeavour made to reconstruct his story and character.

Levett was originally a waiter in a Parisian coffee house, which was a resort of the medical fraternity. These patrons, noting his aptitude, made a subscription and themselves gave him tuition, arranged for his admission to lectures, and so started him on his professional career. Later we find him in practice in London, apparently in the neighbourhood of Fleet Street. It is obvious that his clientèle was of the humblest: Boswell calls him, with perhaps a touch of scorn, "an obscure practiser of physic amongst the lower people," but also states that his practice was so widespread that he used to walk from Houndsditch to Marylebone. His fees were small, and where money was lacking he was sometimes content to be paid in provisions, and sometimes, it is to be feared, in less reputable ways. Johnson says that Levett was probably the only man who ever became intoxicated through motives of prudence: the interpretation of which cryptic saying is that, as there might be no other fee visible on the horizon, he, being apprehensive of no other reward, would take what was offered at the moment in the guise of gin or brandy. Perhaps it was this unusual form of prudence which limited his clientèle, perhaps also his manner and appearance, for we are told that he was "of a strange grotesque appearance, stiff and formal in his manner," and that he possessed a "visage swarthy, adust, and corrugated." But whatever others may have thought of Levett, Johnson had a high opinion of him; indeed, he told Boswell that unless he had Levett with him also he would not be satisfied with the presence of the whole College of Physicians. Levett's attendance on the sage appears to have been generally fortified by the advice in earlier days of Dr. Lawrence, and later of Dr. Heberden.

Besides being handicapped by an ungainly mien and a corrugated visage and the nature of his fees, poor Levett contracted an unfortunate marriage. Johnson says in one of his letters, "Levett is lately married not without much suspicion that he has been wretchedly treated in his match," and again, "Mr. Levett has married a street walker." There was certainly ground for suspicion. The lady cozened her suitor with the story that she was a member of a wealthy family, and on the other hand was led to entertain the view that he was a prosperous physician. There was rapid disillusionment, and Mrs. Levett was soon afterwards arrested for pocket picking. It was said rather unkindly that Levett was with difficulty dissuaded from attending the trial in the hope that she would be sentenced to death. She was, however, acquitted, and the ill matched pair then parted.

It appears to have been at this juncture that Johnson, with his warm-hearted practical sympathy, made his friend a member of his household; as Goldsmith put it, that he was poor and honest was sufficient recommendation to Johnson. Here he lived for the remainder of his life, though seemingly not in complete amity with the other inmates—"Levett hates Desmoulins and does not love Williams." He was not a dependant, for Johnson says that Levett was never indebted to him save for his share in a penny loaf at breakfast and an occasional Sunday dinner. At this breakfast table Levett would preside over the tea kettle, and a visitor says that Johnson would tear out the crumb of bread for himself and throw over the crust to his housemate. After breakfast the obscure practiser in physic would leave the house and was generally not seen again until midnight; doubtless if his daily round involved a tramp from Houndsditch to Marylebone his hours would need to be long, and be it said to his credit that some of his time was spent in attendance on Hunter's lectures.

Such is a brief summary of Levett's career until his sudden death and his burial in St. Bride's. He makes an enigmatic figure as he flits across the interesting stage of that period: a lean, swarthy, ungainly man, the friend and companion of one of England's greatest men, privileged to see and to converse with others whose names are writ large, but spending his working days in a weary round of ill requited toil beside the sick beds of the poor. It was the curiously assorted career of a curiously assorted man. Johnson, with his accustomed charity, enshrined the virtue and excused the weakness, and so Levett was to him a very good and a very blameless man. And he filled in the picture with generous lines in verses which he later wrote, of which these may be quoted:

> In Misery's darkest cavern known,
> His ready help was ever nigh,
> Where hopeless Anguish pour'd his groans,
> And lonely Want retir'd to die.
>
> No summons marked by chill delay,
> No petty gains disdain'd by pride:
> The modest wants of every day
> The toil of every day supply'd.
>
> His virtues walked their narrow round
> Nor made a pause, or left a void;
> And sure the Eternal Master found
> His simple talent well employ'd.

So we say good-bye to Levett, "of every friendless name the friend," and fortunate himself in being befriended by the large-hearted Johnson and so remembered to-day.

J. P.

British Medical Journal.

SATURDAY, APRIL 11TH, 1925.

OSTEOPATHY AND CHIROPRACTIC.

In an article on osteopathy and chiropractic which we published on May 31st, 1924 (p. 963), the doctrines and methods of the two cults were fully examined, and it was pointed out that they exhibited no essential differences, the cults being, in fact, branches of one and the same stock. A notable difference, however, was indicated as regards their power of development. While each started on an equal level of ignorance, chiropractic remained stationary, whereas osteopathy exhibited a tendency to become assimilated to orthodox medicine by the introduction of such subjects as bacteriology and surgery into its curriculum. This being so, it was inevitable that the interests of the two cults should ultimately come into collision, the chiropractors enjoying an undue advantage over their osteopathic competitors because their system requires no medical knowledge or technical skill. Matters appear now to have reached an acute stage in this respect, and osteopathy as a back entrance to medical practice is ceasing to be attractive in comparison with the cheaper introduction afforded by chiropractic.

In these circumstances it is not surprising that osteopaths are seeking to strengthen their position, and they have, accordingly, called in aid the services of members of Parliament. A circular, signed by twenty-one members, was recently issued to M.P.s inviting them to attend a meeting of the British Osteopathic Association to hear an address by Dr. W. Kelman Macdonald of Edinburgh on the present position of osteopathy. The meeting was held on March 31st, about thirty members of Parliament attending, and a report of the proceedings will be found at page 716. Dr. K. Macdonald, after giving an account of the principles and methods of osteopathy, urged, first, that the Legislature should grant the British Osteopathic Association the privilege of conferring diplomas in osteopathy; and, secondly, that the General Medical Council should be debarred from forbidding anaesthetists to work with registered osteopaths.[1] The resolution of the General Medical Council will be generally regarded as a wise one, but were Parliament to see fit to authorize the conferring of diplomas in osteopathy the rule might then, apparently, be held not to apply to those holding that diploma. The question of interest, therefore, is reduced to that of the desirability or otherwise of granting diplomas in osteopathy.

A canvass of the medical profession on this matter would probably disclose an almost unanimous opposition to the granting of such a diploma, but some members of Parliament, in common with other laymen, may find a difficulty in arriving at an independent opinion, owing to the tendency for the issues involved to be obscured by technicalities. Divested of technicalities, however, the problem should not be difficult of comprehension. If existing recognized diplomas are examined it will be found that they differ from one another, not in respect of medical tenets or doctrines, but as regards the extent of the responsibility to be assumed by the practitioner. The diploma in dentistry places responsibility on the practitioner in all diseases relating to the teeth, excluding him from taking responsibility in more general diseases, such as typhoid fever, which, if they came under his notice, he would properly hand over to the physician. A registrable diploma in medicine, on the other hand, has the widest possible scope, and permits the assumption of responsibility in disease of every kind, although it is customary for the practitioner to call in the assistance of the dentist in cases that fall within his proper sphere. In practice, however, the distinction is not as clean-cut as it might at first appear. Patients suffering from disorders which fall strictly within the province of the medical practitioner may, in the first place, apply for treatment to the dentist, and it therefore behoves the latter to have some knowledge of medicine generally, in order that he may avoid the danger of failing to recognize the disease and that he may transfer the patient to the proper quarter. The ideal arrangement is that adopted in this country, as also in France, Germany, and the Scandinavian countries—namely, that all medical practitioners must be qualified to practise medicine, surgery, and midwifery. The Medical Act of 1886 laid down in effect that no one might have his name entered on the *Medical Register* unless he had passed a qualifying examination in all three branches. Turning now to the osteopaths, we find that they undertake responsibility for treatment in disease of every kind, although, like regular medical practitioners, they hand over certain cases to the surgeon. It is obvious, therefore, that the type of diploma appropriate to them is the medical diploma and nothing less. The existing diploma is available, and they should take it before receiving a licence to practise. According to a manifesto recently issued by the British Osteopathic Association the demand is for a more restricted diploma, corresponding to that in dentistry. The above considerations will show that such a demand is inadmissible; osteopaths deal with all manner of diseases, and therefore the wider medical diploma should be insisted on.

Assuming that the osteopath is willing to take a medical diploma, it remains to consider whether it is desirable to create a special diploma in osteopathy for him, to be taken in addition to the former. One reason put forward by Dr. K. Macdonald for demanding a special diploma is that if osteopaths become absorbed into the medical profession their discovery (if discovery it be) will be smothered. They desire to have another fifty years outside the profession in order to demonstrate their art. As we have pointed out above, diplomas have nothing to do with medical discoveries, but merely with the delimitation of medical responsibility. But apart from this, a mere glance into current medical literature will convince anyone that Dr. K. Macdonald's apprehensions are entirely unfounded. At the present day every claim to discovery that is properly advanced is criticized and canvassed all the world over; and such a striking "discovery" as that of the osteopaths—that almost all diseases under the sun have their one and only cause in slight irregularities of the backbone, and may in most cases be readily cured by a simple manipulation of the back—is not likely to be overlooked. Another reason given for the demand is that osteopaths have many impostors among them, and a recognized diploma would serve to distinguish the sheep from the goats.

[1] *Warning Notice* of the General Medical Council: "5. Association with unqualified persons.—Any registered medical practitioner who, either by administering anaesthetics or otherwise, assists an unqualified or unregistered person to attend, treat, or perform an operation upon any other person, in respect of matters requiring professional discretion or skill, will be liable on proof of the facts to have his name erased from the *Medical Register*."

Dr. K. Macdonald reports that impostors of this type are establishing schools in the Midlands at the present time, and expresses a praiseworthy desire that the public should be protected against them; but there is no need to create a special diploma for this purpose; the ordinary diplomas are available. On the whole, therefore, it appears that the osteopaths wish to join us and yet remain distinct. What is the object of this attitude? We can only surmise that they would find the proposed diploma useful as a species of trade-mark or advertisement. But that is not at all in accordance with the sentiments and traditions of the medical profession, and we bar it as inadmissible.

It may remove some misapprehension if an explanation is given of the manifest indifference with which osteopathy is received in this country on the part of medical men. It may, perhaps, be inferred that we consider there is nothing in it. Such is by no means the case. We are aware that osteopaths profess to make use of approved hygienic measures in their treatment, and that they attach importance, with a view to treatment, to deformities of the spine, such as lateral curvature, with which the regular practitioner is quite familiar. When, however, osteopaths refer innumerable diseases to small derangements in the form of the backbone—irregularities which we are unable to detect at *post-mortem* examination, with the body open before us—we regard their theories as far-fetched and fanciful, and, when applied to grave diseases such as typhoid fever and diphtheria, as decidedly dangerous. When we are asked to believe that a cold in the head, a crop of pimples on the face, an attack of vomiting and diarrhoea after a gorge, an attack of gout or measles—that these and a host of other diseases too numerous to mention are, one and all, due to small spinal irregularities which may be readily corrected by manipulation of the back, we experience a difficulty; it leaves us, so to speak, cold. It may be objected that no such difficulty has been felt in America, where osteopathy has had an enthusiastic reception. It should be remembered, however, that America is the land of freedom—freedom for faddists, among others. Just as, in the words of Dr. K. Macdonald, "the backbone is the happy hunting ground of the osteopath,"—so America may be said to be the happy hunting ground of the crank. His activities have free play there, and, if need be, he will found a college to promulgate his notions. Few Englishmen realize the ease with which a State charter for an educational institution can be obtained in the United States, and the editor of *Truth* hardly exaggerated in saying that it seemed easier to establish a university in the United States than to open a "pub" in England. It was and is. Only ten of the forty-eight States in the Union make any provision for the slightest control over the charters of educational institutions. In thirty-eight States, therefore, any coterie of men, by paying an insignificantly small fee, can obtain permission to open an institution with the avowed purpose of granting any degree in any subject. When these States grant charters they ask no questions as to whether the institution is properly equipped or has teachers qualified to furnish the education usually demanded before degrees are granted. Furthermore, even after such institutions have been exposed as worthless or fraudulent there is no legal provision for revoking their charters. We are not to be understood as implying that osteopathic schools are necessarily fraudulent; our object is to point out that because in America a given State grants a charter to an osteopathic college, it does not follow that such a college has any standing from an educational point of view. The conditions are not the same in the two countries, and we think that our osteopathic visitors will have to fall in with our ways.

PULMONARY FIBROSIS.

UNDER the name "pulmonary fibrosis" are grouped together all chronic diseases of the lung which are characterized by an overgrowth of connective tissue. The fibroblastic cells, starting from situations where normally connective tissue is most abundant—that is to say, round air passages and blood vessels and interlobular septa—grow in all directions, compressing the air vesicles, causing the lung to lose its elasticity, and finally converting it into a tough, almost rigid organ. Such progressive degenerations betray themselves in many chronic diseases—in phthisis, for instance, or syphilis—but there are two causes of fibrous tissue overgrowth in the lungs of patients whose other organs are healthy: these are the toxic action of bacterial poisons and the inhalation of irritating dust. To these Sir Thomas Oliver may perhaps add a third if the experiments, described in his paper published this week (p. 685), on the intravenous injection of aluminium metal, bauxite, in a finely powdered state, should lead to pulmonary fibrosis, as his preliminary results suggest. In undertaking this line of research he followed the method of Dr. Drinker, who injected minute particles of manganese silicate intravenously and found structural alterations in the lungs of the injected animals. The argument seems to be that finely particulate material in the blood stream, when passing through the pulmonary capillaries, is taken up by the endothelial cells, and, once localized, may initiate a fibrotic reaction round about.

Returning to the two well established causes of fibrosis: The variety which appears after an acute lobar pneumonia is fortunately an unusual sequel, but a patchy type of fibrosis often attends the healing of bronchopneumonia, and, as Dr. Bernard Shaw and others have recently reminded us, a disabling overgrowth of fibrous tissue not uncommonly follows in the wake of influenza. Further discussion of these toxic origins of pulmonary fibrosis would take us too far from the main theme of Sir Thomas Oliver's lecture—occupational pulmonary fibrosis, a subject he has studied for many years. There are points in his paper which deserve special emphasis at the present time.

So much has been said about silicosis as a predisposing cause of tuberculosis that it is easy to overlook the fact that the serious deformity, silicotic pulmonary fibrosis, may be responsible for dyspnoea and marked reduction of respiratory capacity, in the absence of the more serious infection of the tubercle bacillus. Pulmonary silicosis is a disease *sui generis*: some cases may proceed to a fatal end without the lungs ever becoming tuberculous; this has been proved by the results of *post-mortem* examination. Patients with uncomplicated silicosis suffer from dyspnoea, and later, owing to obstruction of the circulation, from hypertrophy of the right heart, general venous congestion, and oedema. Undoubtedly many more victims of silicosis are hurried on the downward path by a superimposed tuberculous infection to which they are peculiarly susceptible.

Though all inhaled particulate matter is liable to damage the lungs, two factors—the shape and the size of the particles—determine the amount of damage which will be inflicted. The chemical composition also probably plays a greater part than has previously

been admitted. It would seem natural to assume that sharp mineral particles are more dangerous than smooth, and in support of this it is sufficient to mention the heavy toll of health demanded by rock drilling in the mines of the Transvaal. But damage follows the inhalation of particles other than the sharp and gritty, as witness the fibrosis of the lungs due to the inhalation of asbestos dust about which Dr. W. E. Cooke of Wigan wrote recently in this JOURNAL.[1] When the asbestos rock is crushed much fine dust and fibre escape into the workroom, and Sir Thomas Oliver describes how during these processes the atmosphere of the workroom is quite cloudy, so that the hair and clothing of the men become covered with white fluff. Asbestos contains a large quantity of silica compounds, and it is possible that this notoriously dangerous substance may be the chief agent in damaging the lung. A good deal of new work has been published lately on the mode of action of silica on the lungs, and it seems likely that the chemical composition and not the physical properties of silica dust is most to blame.

The second factor of chief importance is the size of the particles. The experiments which have been carried out by Dr. Mavrogordato in South Africa[2] teach us that particles above 10 microns in size are not very harmful to the lungs, and ultramicroscopic particles, less than a tenth of a micron in diameter, probably are not injurious at all. Curiously enough, it is the particles about the size of the common pathogenic microbes, 1 to 4 microns, which do most harm.

The health of the industrial worker is a problem of great national importance. In many industries employers now realize that the most hopeful path to increased production is improved health of the workers, for sickness is responsible for a tragic loss of time and efficiency. On the other hand, social statisticians tell us that restlessness and discontent among employees waxes and wanes with the tide of sickness. A healthy worker is more likely to be a contented worker; but sickness breeds ill will. Therefore, those who study occupational diseases and further our knowledge of how these may be diminished render a national service singularly helpful in these days.

DANGERS OF ULTRA-VIOLET LIGHT BATHS.

No one who has made himself acquainted with the benefits to be derived from ultra-violet light as a therapeutic agent can fail to recognize its value in certain forms of disease. That it can be followed by harm is less generally known, and it is therefore opportune that Sir Lenthal Cheatle has communicated in a letter (BRITISH MEDICAL JOURNAL, March 28th, p. 631) the result of some observations made by him on the skin of an individual "bronzed" by sunlight. The comments (April 4th, p. 679) of Dr. Leonard Hill on this letter seem to show that no real apprehension need be entertained as to the possibility of a late development of carcinoma among patients treated by this new remedy, and this is satisfactory so far as it goes. What, however, may appear to be disquieting is the use to which ultra-violet light is being put by those who possess little knowledge of its qualities. In a letter published in the present issue (p. 717) Dr. C. B. Heald states that a firm of builders contemplated equipping the bathrooms of some houses with ultra-violet lamps. If it were the case that the light generated by artificial means were exactly similar to sunlight, no doubt only good would result; but as it is well known that in certain circumstances exposure may be followed by most undesirable results the procedure would appear to be of very dubious value. We know that the eyes have to be carefully protected, that persons of a light complexion may be considerably affected, that in cases of pulmonary tuberculosis the disease may be aggravated, and that other, if minor, inconveniences may be caused. Dr. MacCormac and Dr. McCrea record in this issue (p. 693) the very serious consequences that followed an unduly prolonged exposure in a patient who was taking "light baths" without medical advice. Where this remedy is used, as it should be, under proper control, it is a powerful agent for good. The public have come to believe that ultra-violet light in all forms can be employed with perfect safety, a belief that has already been productive of harm. It would be well if they were to recognize that overdosage may occur, and may be attended with unexpected and undesired consequences.

[1] BRITISH MEDICAL JOURNAL, July 26th, 1924.
[2] Ibid., March 21st, 1925, p. 566.

QUEEN MARY'S HOSPITAL AT ROEHAMPTON.

IN our issue of August 11th, 1923, we announced the decision of the Minister of Pensions to transfer the Special Surgical Hospital from Du Cane Road, Shepherd's Bush, to Roehampton House. This change was made necessary by the decision of the Hammersmith Board of Guardians to resume possession of the premises at Shepherd's Bush, which had been built and used as a Poor Law infirmary previous to their lease to the Government during the war. Queen Mary's Convalescent Auxiliary Hospital at Roehampton was established in 1915 in order to supply prostheses to the large number of officers and men who had lost limbs in the war; there they were dealt with in ever-increasing numbers until at one time there were nearly 1,000 patients in hospital at a time, and over 300 first limbs were supplied every month. This was rendered possible by supplementing the accommodation in the old house and its wings by wooden huts. Unfortunately the committee did not see fit to make any provision for the performance of operations, and consequently those patients —and they were many—whose stumps required active surgical treatment had to be transferred temporarily to other institutions. An artificial separation was thus made between operative and prosthetic orthopaedic surgery, and this separation became still more marked when the Military Orthopaedic Hospitals (since renamed Special Surgical Hospitals) were established under Sir Robert Jones. The intention referred to by us in August, 1923, is now being carried into effect, and on May 6th the necessary extensions at Roehampton will be formally opened by the Queen, who has always taken a warm interest in this hospital and those associated with it. These extensions consist of five new wards built of brick, each containing forty beds, which have replaced some of the wooden huts, an operation block containing two theatres, and special wards for electrotherapeutics and other purposes. Five hundred orthopaedic and a few medical cases are being transferred from Shepherd's Bush this month, and eighty facial cases from Sidcup will follow. This reinforcement of Queen Mary's Hospital by the staff and patients from Shepherd's Bush will not affect the prosthetic work which is still being carried on in the limb-fitting hospital, for which there is still plenty of scope. In the last two years 500 limbs, which surgeons have been trying in vain to save, have been amputated, and the patients sent to Roehampton for the provision of artificial limbs. Moreover, there is a constant stream of old patients returning for the provision of new prostheses or the repair of old ones, to the extent of some eighty each week. The committee of Queen Mary's Convalescent Auxiliary Hospitals provides the buildings and maintenance for all the patients, but the surgical staff is appointed and paid by the Ministry of Pensions. The separation between prosthetics and orthopaedic treatment should never have occurred and has continued too long; but "all's well that ends well," and we heartily welcome

their reunion on the pleasant lawns and under the stately cedars of Roehampton House. The committee has long had in view the desirability of placing the skill and experience of the limb-makers at Roehampton at the service of civilian amputees. Arrangements have already been made with the great railway companies, the L.M.S. and the L.N.E.R., whereby all amputation cases among men in their employ may be sent to Queen Mary's Hospital for fitting. It is hoped that the colliery owners will soon follow suit, and no doubt further developments will occur, provided the cost of the prostheses supplied is within the means of charitable agencies which are without access to the public purse.

PENSIONS OF R.A.M.C. OFFICERS.

IN a leading article in the JOURNAL of October 18th, 1919, we called attention to the unfair manner in which majors in the Royal Army Medical Corps had been treated in regard to pensions under the new Royal Warrant. The much heralded increases that were to be given all round ended in these officers losing a sum of £44 per annum. Prior to the new Warrant of 1919 a major with twenty years' service was entitled to a pension of £1 a day, or £365 a year, and there is no doubt that to many officers this was a great inducement to join the service. Under the new order of things the pension of a major with twenty years' service was reduced to £321 per annum. We assume that this was an unforeseen result of the new method of calculating pensions—namely, the granting of a "service element" (in this case £225) and a "rank element" (£96). The Council of the British Medical Association at once called the attention of the War Office to two facts: first, that in this new pension scheme no financial recognition was being given to the R.A.M.C. officer for coming into the army fully equipped with his profession some five years later than officers in other branches whose professional equipment was obtained at the expense of the country; and secondly, that the major R.A.M.C. had actually lost £44 per annum on his pre-war rate of pension. The first matter was promptly dealt with in the following way. The sum of £75 was added to the "service element" for all medical officers, thus bringing the pension up to £300 from £225. The second matter has never been put right, because the "rank element" remained unaltered. The result of the addition of £75 was that the major got back the £44 he had lost, but only gained on the whole transaction £31, bringing his pension to £396—an increase of 8½ per cent. to meet an increase in the cost of living which at the time when the Warrant came out was 174 per cent. above the normal. Another extraordinary provision was that the new rate of pension was liable to a reduction amounting in all to 20 per cent., which was to be carried out by instalments—the first at the end of five years, and three others at the end of further periods of three years each. The inequity of this arrangement is now becoming apparent, because majors who were captains when the new Warrant came into force are just beginning to come due for retirement after twenty years' service. These officers, although they were in the corps before the new Warrant became effective, are given no option but to accept its terms. It is also worthy of note that whereas a soldier can retire on any warrant which gives him the most favourable terms, an officer cannot do so. A major with twenty years' service retiring to-day gets a pension of £396, less 5½ per cent. (approximately £20), leaving him with £375 as against £365 pre-war. A second reduction falls due three years from last July, and if this reduction is one of only 3 per cent. the whole of the increase over pre-war rates will have gone. As there is a provision for further decreases after the first, amounting in all to 14½ per cent., it is clear that, notwithstanding statements which have been made to the contrary, the pensions of these officers can fall, not only below, but far below, the pre-war rate. They might, as a matter of fact, be reduced to about £320 per annum. This is bad enough, but the lot of the major who has counted twenty years by virtue of putting in service in certain unhealthy districts, where one year counts for two, is infinitely worse. The following case has just been brought to the notice of the British Medical Association, and we understand that there will be many more officers in a similar plight. X, who put in four years in an unhealthy climate, where time counts double for pension purposes (that is, eight years in his case), recently retired under the twenty years' provision after sixteen years' actual service, only four of which could be in the rank of major. His pension, therefore, under the present Warrant, worked out at £348—£300 service element and £12 for each year in the rank of major; but as the first reduction of 5½ per cent. had come into force before he retired he gets no more than £328, and in the next nine years his pension may be reduced to £280 because there is still a further 14½ per cent. reduction which can operate against him. He states that his chief inducement to join the corps was the fact that he would get a pension of £365 after twenty years' service or the equivalent of twenty years' service if he had served part of his time in unhealthy areas. These anomalies are due to the unfair operation of the rank element method of reckoning pensions, and also to the extraordinary provision that the increases given by the new Warrant are subject to a reduction of 20 per cent., not on the increase alone, but on the whole pension.

SIR THOMAS LEGGE.

SIR THOMAS LEGGE, the principal medical inspector of factories, who recently received the honour of knighthood, was entertained to dinner by his fellow workers in the sphere of industrial medicine at the Hotel Cecil, London, on April 1st. The arrangements had been carried out by the Association of Certifying Factory Surgeons, and its president, Dr. R. Prosser White, himself a well known authority on industrial skin affections, was in the chair. Certifying surgeons, experts in industrial medicine, representatives of the Home Office, medical and other members of Parliament, forgathered to the number of seventy. The guest of the evening was the recipient of many good wishes from far and near. Dr. Edsall of Harvard, Boston, cabled for himself and American colleagues, Dr. Glibert on behalf of the Belgian factory medical service, and Dr. Geier of Cincinnati for the U.S.A. Public Health Service. Of the numerous letters of felicitation received the most notable were from Sir Arthur Whitelegge, Professor Leonard Hill, Dr. C. S. Myers, Dr. H. M. Vernon, Professor E. Collis, Dr. J. C. Bridge, Dr. L. Carozzi of the International Labour Office, Geneva, and Mr. Rhys Davies, late Under Secretary of State. Dr. René Sand, secretary of the International League of Red Cross Societies, was at the last moment prevented from attending owing to the severe illness of a near relative. The President proposed the toast of the evening, and was followed by Sir Kenneth Goadby, who spoke as a very old friend and one of the earliest co-operators with Sir Thomas in his particular specialty. Sir Thomas Legge, in his response, gave a survey of the wonderful progress made by industrial medicine during the present century, and spoke very feelingly of the happy relationship which existed between himself and certifying factory surgeons. The toast of "Industrial medicine," coupled with the names of Sir Thomas Oliver, Dr. O'Donovan, and Dr. A. Leitch, was proposed by Dr. D. McKail. The visitors were toasted by Dr. T. Watts, M.P., and Mr. Bannatyne of the Home Office, Sir Gerald Bellhouse, Dr. R. A. Bolam, and Miss E. Kelly, president

of the Institute of Industrial Welfare Workers, suitably responded. Sir Henry Craik and Dr. Fremantle, who should have spoken to this toast, were unfortunately compelled to leave early owing to Parliamentary duties.

OLD AND NEW HAMPSTEAD.

HAMPSTEAD savours of romance. The Heath, Jack Straw's Castle, the Spaniards (with its memories of Dick Turpin and of Mr. Pickwick), the Bull and Bush—the names suggest old times and old doings. Moreover, in the seventeenth and eighteenth centuries the Hampstead chalybeate springs (now dried up, and commemorated only in Well Walk and Flask Walk) were held in high esteem for their supposed curative virtues. In a lecture on the health of Hampstead, past and present, delivered in 1923 and now published, Dr. F. E. Scrase, the medical officer of health for the borough, discourses on Hampstead, not only as it is, but as it was. He explains that the hill of Hampstead is formed by a huge elevation in the bed of the London clay, which there supports an extensive cap of sand, in some places eighty feet thick. This rendered it easy to get water; whereas from the line of what is now Oxford Street, northwards to the foot of Hampstead Hill, there was only a great expanse of non-water-bearing clay. Thus, with its water supply old Hampstead was a place apart, and until the water companies came London could not extend in that direction. But from the sandy height streams took their rise. One, the Kilbourne, ran across Finchley Road, along what is now West End Lane, and turned westward near the old Kilburn Wells, to become a tributary of the Westbourne, whose course in Hyde Park is marked by the Serpentine. To-day the curiously winding course taken by the bus-frequented West End Lane is perhaps to be explained by the meanderings of the Kilbourne. Another stream, the Tybourne, rising in the conduit spring on the southern slope below Hampstead village, followed the line of the present Fitzjohn's Avenue, ran down through Belsize, skirted the west side of Regent's Park, and crossed Oxford Street and Piccadilly on its way to join the Thames at Westminster. On the east side arose the Fleet River, or Holebourne (whence Holborn), whose main source was a stream fed by springs issuing from the higher parts of Hampstead Heath. Such water-courses, as time passed, were turned into sewers, which received the waste water resulting from the supplies by the new water companies. It is all very interesting, but we cannot follow Dr. Scrase in his story from ancient to modern, nor refer to the instruction he imparts as to the value of the present-day public health system which has developed from these humble beginnings, when (to use the words of the first medical officer of health) the very ground was "saturated with the faeculence of ages." If we venture on a word of criticism, it is to express regret that so good a pamphlet has been issued without correction of a few slips.

ANKYLOSTOMIASIS AND BILHARZIASIS IN EGYPT.[1]

ANKYLOSTOMIASIS has been endemic in Egypt probably since the time of the ancient Egyptians; but it is only since 1847 that the hookworms have been regarded as pathogenic. At the beginning of this century Looss wrote his famous memoir on the anatomy and life-history of the parasite, but until recently little exact knowledge of the incidence of ankylostomes in the country was available. Bilharziasis is likewise a very ancient disease—indeed, the characteristic ova of the parasite have been found in the kidneys of mummies of 1250 to 1000 B.C. The disease was known from the earliest times, but its parasitic nature was unsuspected until 1852. The search for the secret of the life-history was unsuccessful until the war period, when Leiper's brilliant investigation not only solved this problem, but also proved that the urinary and intestinal forms of the disease were due to two different species of worm. Although little was known of the incidence of the disease before 1913, it was regarded as the most widespread serious malady in Egypt. Towards the end of 1913, the Department of Public Health, on the initiative of Lord Kitchener, appointed a committee to conduct a campaign against ankylostomiasis, and to investigate the spread of bilharziasis and pellagra. During 1914 and 1915 it was ascertained that the parasite was present in about three-quarters of the population, and the possibility of treating ankylostomiasis on a large scale was demonstrated. The infections with schistosoma, however, were only recorded from statements by patients—a method since found to be almost valueless. The committee suspended operations in April, 1915, and it was not until 1919 that it again resumed its activities. During the interim Leiper had discovered the intermediate hosts of the bilharzia worm, and Cristopherson had found that tartar emetic was a specific for the disease. The work of the committee was extended to include the treatment of the flukes as well as the hookworm. The reconstituted committee under Dr. Todd held its first meeting in January, 1921, and commenced to attack the problem of these two diseases. Various annexes, situated close to general hospitals, were started at Government expense for the treatment of the diseases, and patients were examined for the presence of parasites and treated accordingly. During the period from 1920 to 1923 over 100,000 cases have been treated at these annexes. At the same time a considerable amount of propaganda work was undertaken by means of leaflets and posters; some of these, reproduced in the report, are most effective and instructive. The investigation section was under the direction of Dr. M. Khalil, who proceeded to Egypt in November, 1922, from the London School of Tropical Medicine, and who, in addition to a considerable amount of personal research, is mainly responsible for the present report. His confirmatory experiments on the use of carbon tetrachloride as an anthelmintic show that it is, if pure, a safe and valuable drug to use against hookworm and pinworm, although of doubtful efficiency against ascarids. He has also conducted a large series of experiments on the control of bilharziasis. His recommendations are practically the same as those suggested in 1918 by Leiper, with the additional application of the recent use of copper sulphate in high dilution for the destruction of the molluscan intermediary of the parasite in the water in which it lives. In a survey undertaken at one village to provide an index to the parasitic infection among the Egyptians, Khalil found that only 4 per cent. of the inhabitants were free from parasites, and that 73 per cent. harboured *Schistosoma haematobium*, 34 per cent. *S. mansoni*, 64 per cent. ascarids, and 16 per cent. hookworms. This low incidence of hookworm is not the rule in Egypt; its prevalence appears to be very irregular. In a second survey in Upper Egypt about 75 per cent. of those examined showed the presence of *S. haematobium*; no infection with *S. mansoni*, the cause of intestinal bilharziasis, was, however, found, although several cases of intestinal infection with *S. haematobium* were detected. The absence of *S. mansoni* was confirmed by the absence also of planorbis snails, the specific intermediary, from the canals and drains of the district. The most recent statistics accordingly show that about 75 per cent. of the inhabitants of Egypt are affected with bilharzia worms, and the direct mortality is estimated to be about 8 to 25 per cent. of the total deaths; the infection also predisposes to dysentery and other diseases. The report is an extremely valuable

[1] Reports and Notes of the Public Health Laboratories, Cairo, No. 6: *Ankylostomiasis and Bilharziasis in Egypt*. Government Publications Office, Ministry of Finance, Dawâwin, P.O., Cairo. (Pp. 196. Price P.T. 30.)

contribution to the parasitology and public health of Egypt. It is unfortunate, however, that an otherwise excellent production should be somewhat marred by many misprints. The Public Laboratories in Cairo are to be congratulated on the possession of such a valuable worker as Dr. Khalil, whose energy has made this volume possible.

JEAN PECQUET.

JEAN PECQUET, the tercentenary of whose birth was celebrated at his native town of Dieppe in 1922, has hitherto been principally known as the first to describe the receptaculum chyli, which is called in France the "citerne de Pecquet." Dr. Jean Lucq, who has devoted his inaugural thesis[1] to the study of the life and work of this eminent French anatomist, claims that Pecquet is entitled to a more important place in the history of anatomy, and that he is to be credited with the discovery of the circulation of the chyle. Previous observers, from the time of Galen, had maintained that the chyle was conveyed by the mesenteric veins to the liver, where it was converted into blood. Even Asellius, who discovered the lacteal vessels in 1622, was of opinion that they emptied themselves into the liver. In his *Experimenta nova anatomica*, published in 1651 while he was still a student in Paris, Pecquet gave the first description of the receptaculum chyli and the passage of the chyle through the thorax into the innominate vein. His discovery was met by incredulity, especially on the part of Riolanus, who attacked him with considerable bitterness, suggesting that the dogs he had been dissecting had made him mad; but the Danish anatomist Bartholin, after some hesitation, confirmed Pecquet's observations. Le Noble, a physician of Rouen, endeavoured to conciliate both sides by suggesting that part of the chyle was distributed to the heart and part to the liver, but the opposition to Pecquet ceased after the death of Riolan in 1657. Dr. Lucq is inclined to discredit the accusation of alcoholism brought against Pecquet in his latter years, though this factor may have contributed to his death at the comparatively early age of 52. Apart from his anatomical investigations, Pecquet took some part in the political life of the time in his capacity of friend and medical attendant to the celebrated superintendent of finance Nicolas Fouquet, whose imprisonment he shared for over three years. Subsequently Pecquet became the medical adviser of Madame de Sévigné, who makes several allusions to him in her letters.

MEDICAL SOCIOLOGY AT THE BATH ANNUAL MEETING.

THE officers of the Section of Medical Sociology in the forthcoming Annual Meeting of the British Medical Association at Bath have now drawn up the programme of work in their Section on the day allotted to it—Friday, July 24th. The morning session will be given up to a discussion of the question, "What should be the standard of purity of milk?" This will be opened from the point of view of the bacteriologist by Dr. R. Stenhouse Williams, of the National Institute for Research in Dairying, Reading; from the point of view of the medical officer of health by Dr. W. G. Savage, M.O.H. for the county of Somerset; and from the dietetic point of view by Dr. Eric Pritchard. An allied subject—By what means can pure milk be obtained, and at what cost?—will be debated also from three aspects. Mr. Wilfred Buckley, of the National Clean Milk Society, will open from the standpoint of the producer; Mr. G. P. Male from that of the veterinary surgeon; and Mr. J. H. Maggs from that of the distributor. Cinematograph films will be shown to the Section, illustrating the production of certified milk on an English farm and the handling and distribution of milk in New York City.

[1] *Thèse de Paris*, 1925, No. 22.

England and Wales.

ROYAL VICTORIA INFIRMARY, NEWCASTLE.

THE most prominent feature of the work of the Royal Victoria Infirmary, Newcastle-upon-Tyne, during 1924 was the overwhelming demand for beds. The number of in-patients treated during the year, 12,865, was the highest yet reached, and was an increase of 706 over the previous year, which also was a record. The number of patients awaiting admission to hospital at the end of 1924 was 1,202. Although the normal bed accommodation is 534, there was a daily average occupation of 539, and as high a number as 589 had been recorded. To provide for this extra number of patients additional beds had to be placed in the wards, on some occasions more than fifty beds being brought into use during a single week. These conditions necessarily resulted in an injurious shortening of the duration of the treatment of in-patients. Similar difficulties were experienced in 1913 and 1918, while in 1920 the strain continued to be felt in spite of the fact that two extra wards, each containing twenty-six beds, had been added to the hospital. The overcrowding was particularly marked in the wards for women and children. The two factors which mainly contributed to the large increase in the number of in-patients were the severity of the accidents brought to the hospital and the number of cases in which immediate operation was required. During the year under review, 17,352 accident cases were treated, a daily average of 47; of these cases, 1,909 required admission to the wards. A special inquiry made by the House Committee led to the belief that 75 per cent. of the motor accidents dealt with by the hospital were of such a serious character as to require admission. The committee, therefore, placed the facts before the City Council in the hope that it might be possible to reduce these figures, and also to obtain more financial support from the City Council, since 70 per cent. of the out-patients and 42 per cent. of the in-patients concerned had met with their accidents in the streets of Newcastle itself. The total number of out-patients was 110,525, an increase of 5,000 on the previous year. The total subsequent attendances of these patients reached 189,049. A balance of over £7,000 remained after meeting the year's expenditure, and this had been used to relieve the overdraft at the bank. An increase in subscriptions and donations had occurred, and the endowment fund had been raised by £4,000.

BIRMINGHAM HOME OF REST.

Dr. Mary Sturge Memorial Wing.

The Lord Mayor of Birmingham opened a new nurses' home at the Taylor Memorial Home of Rest, Sparkhill, on April 1st. The extension is to be known as the Dr. Mary Sturge Memorial Wing, in remembrance of the deep interest she always took in the work of the institution, and during her active life had initiated the scheme for the erection of a nurses' home. The cost of the new building was between £3,000 and £4,000, of which £400 had been received in response to an appeal composed by Dr. Sturge not long before her death. Mr. Christopher Martin, F.R.C.S., who presided, said that the home was established in order that poor women suffering from inoperable malignant disease might be nursed and made as comfortable as possible. He referred to Dr. Mary Sturge's ardent and enthusiastic support of the institution since its foundation, and said that her dying request to her relatives was that all possible help should be afforded in support and maintenance of the home. It was felt that the best memorial they could give to her was to open a Dr. Mary Sturge Memorial Fund, the object of which would be to pay for the extension and to provide an endowment fund to carry it on and to increase its usefulness. A letter was read from Mr. W. H. Sturge, stating on behalf of his brothers and sisters that they desired to give £1,000 in memory of their sister, with the object of providing accommodation for more patients, in accordance with her wishes. In declaring the extension open the Lord Mayor paid tribute to the work and devoted service of Dr. Sturge, who, he said, never spared herself when the opportunity occurred

for helping those in distress. Subscriptions to the Dr. Mary Sturge Memorial Fund may be sent to Mrs. H. C. Ashton (honorary secretary), or to Mr. C. H. Saunders (honorary treasurer), at the Taylor Memorial Home, Showell Green Lane, Sparkhill, Birmingham.

THE IMPORTATION OF FOOD.

The Minister of Health has issued a new series of regulations[1] dealing with imported food, which will come into force on June 1st. These regulations amend and consolidate the previous regulations of 1908 and 1909, which have been extended so as to apply to importations of food by train-ferry service and by aircraft. The enforcement in the case of these services is entrusted to the sanitary authorities for the areas where the food is unloaded from the railway truck or aircraft. The provisions for dealing with food found on examination to be unsound are substantially the same as in the previous regulations, but a new clause makes it a definite offence to import any food which has at any stage in its preparation been contaminated in another country. Two schedules deal with classes of overseas meat made subject to special control. The first schedule includes a list of prohibited meat, and special attention is drawn to cases where there is evidence that one of the deep-seated lymphatic glands has been deliberately removed; such meat may not be imported under any conditions. The second schedule deals with meat conditionally admissible; where, for instance, a part has been cut off so as just to exclude one of these glands, such a part may be admitted if accompanied by an official certificate, except in the case of heads cut off so as not to include submaxillary glands. An official certificate is now required for lard, dripping, edible tallow, and other rendered fats. The official certificates of certain countries have already been recognized, and before the new regulations come into operation a notice will be inserted in the *London Gazette* specifying all the certificates which will be recognized from the date of commencement. A further circular will then be issued containing a copy of the notice.

NATIONAL LEAGUE FOR HEALTH, MATERNITY, AND CHILD WELFARE.

The National League for Health, Maternity, and Child Welfare originated in 1905, and now includes the National Association for the Prevention of Infant Mortality, the Association of Infant Welfare and Maternity Centres, the National League for Physical Education and Improvement, the National Baby Week Council, the National Society of Day Nurseries, the National Council for the Unmarried Mother and her Child, and the Women's National Health Association of Ireland. During the past year particular attention was paid by the league to extension of the child welfare movement, and a list of suggestions sent to the Ministry of Health contained recommendations for the teaching of biology to school girls, as a foundation for subsequent teaching in hygiene and mothercraft. It was also recommended that there should be more extensive provision of facilities for the diagnosis and treatment of venereal disease, and for convalescent treatment for mothers and children, more dental clinics, nursery schools, and hospitals for illegitimate children. Health lectures were given to the members of working girls' clubs—twenty-five in the provinces and ninety-six in London. It is proposed to organize free courses of popular lectures on general health topics, the expenses to be borne by the Women's Imperial Health Association Fund. A cinematograph film is to be prepared to illustrate such activities as swimming, field and playground games, drilling, sports, and the physical training of adolescents. It is announced that this film will be lent, free of charge, to local education authorities, or to any other organization which can provide an audience of parents, teachers, and others interested. The library of the league has received a considerable number of new books dealing with child care, psychology, and heliotherapy. The annual report of the league for 1924 states, further, that the sale of the league's publications during last year has passed all previous records, the total income resulting therefrom being over £2,000, which has been of the greatest value in carrying on the work of the league. The fourth edition of *Mothercraft*, published at the end of February, 1924, was almost entirely sold out by the end of the year, and the fifth edition has now appeared. The "Tired Mothers Holiday Fund" has provided forty-three grants, an increase of ten over the previous year. The league's report contains the annual report of the associated societies, and a statement of accounts for 1924.

[1] Statutory Rules and Orders, 1925, No. 273. London: H.M. Stationery Office. 3d. net.

Scotland.

VOLUNTARY ADMISSION OF RATE-AIDED PATIENTS TO MENTAL HOSPITALS.

THE board of direction of the Crichton Royal Institution, Dumfries, has presented a memorial to the Secretary for Scotland urging the importance of making suitable statutory provisions so that rate-aided patients may be admitted as voluntary patients to mental hospitals in Scotland. The memorial points out that the present Scottish Lunacy Acts are defective in so far as they debar the rate-aided or poorer classes of the community from receiving treatment as voluntary patients in the public mental hospitals of the country. This involves the postponement of treatment until they have become certifiable as insane, and in many cases such patients become, as the result of the delay, incurable. In the Crichton Royal Institution approximately two-thirds of the patients are private and one-third rate-aided. The private patients, who are maintained by themselves or their relatives, are received either as voluntary patients or under certificates of insanity. A great change has taken place in the relative proportions of these two classes since 1908, when the reception of voluntary patients began. Previously, about 20 per cent. of the private admissions were voluntary and 80 per cent. were certificated. Since 1908, 70 per cent. of the private patients admitted are voluntary and only 30 per cent. under certificates. As a result, while there were 21 voluntary patients in residence on December 31st, 1907, there were 212 on December 31st, 1924. Experience at the institution has gradually proved that the great majority of patients can be treated suitably in a mental hospital under the voluntary procedure, which has the great advantage of encouraging earlier treatment, and is more attractive to the patients as well as to the relatives and all concerned than the alternative of certification with its legal and other disabilities. In contrast to the private patients, the rate-aided patients are all admitted under certificates of insanity from the various parishes of Dumfriesshire and Galloway. A tabular statement is presented in the memorial comparing the results of treatment among the private voluntary, private certified, and rate-aided certified groups. The results of treatment are shown to be better among the voluntary than among the certified of the private class, for the reason that the former exhibited in larger proportion illnesses of less serious type and more recent duration. The great majority of private patients had been previously treated in nursing homes and private houses, whereas the rate-aided patients were sent direct from their homes in nearly all cases. It is pointed out that the more favourable results of mental hospital treatment among private as compared with rate-aided patients from a city may to some extent be explained by the difference in the previous mode of life and social environment of the two classes, but this consideration is hardly applicable to rate-aided patients from the healthy rural areas of Dumfriesshire and Galloway, amongst whom it might have been expected that the results of treatment would have been even better than among the private class. On the contrary, it was found that the recovery rate (or number discharged as recovered per 100 admitted) of the private voluntary group exceeded that of the rate-aided certificated group by 9.2 per cent. If those discharged as improved were included with those discharged as recovered, the rate for the private voluntary group exceeded that for the rate-aided certificated group by 23.3 per cent. The memorial expresses the belief that on a conservative estimate the

results of the treatment of rate-aided certified patients would be 10 or 15 per cent. better if they were admitted as voluntary patients, and that this was worthy of consideration, not only from the humanitarian aspect, but also from the point of view of the national welfare. Under the present arrangements, rate-aided patients can be legally admitted for treatment as voluntary patients in Scottish asylums, but there is a practical bar to their admission in the fact that the lunacy grant is paid to parish councils towards the cost of "pauper lunatics" only, and parish councils have been reluctant to lose the benefit of the grant (as they would) if rate-aided patients were admitted as voluntary patients to asylums. Consequently, they have not encouraged the voluntary system. It may be recalled that in our issue of March 7th (p. 475) it was pointed out that certain parishes, notably in Argyllshire and recently the Edinburgh Parish Council, had decided that the poor should be put in a position to enjoy the advantages of voluntary treatment notwithstanding that this involved relinquishing the grant-in-aid. The memorial considers it only fair to expect that if the disabilities mentioned were removed and the early treatment of mental diseases was encouraged in the ways indicated, rate-supported mental patients would in time come to the mental hospitals at least as willingly as private patients at present, and perhaps eventually with no more reluctance than the rate-aided inmates of fever hospitals and sanatoriums.

Memorial to the late Dr. C. B. Ker.

A subscription list has been opened to provide a memorial to the late Dr. C. B. Ker, medical superintendent of the City Hospital, Edinburgh, and a circular has been issued to all past and present members of the medical and nursing staffs of the hospital whose addresses are known inviting them to contribute. The appeal is being issued in the names of Dr. Alexander James, the consulting physician to the hospital; Dr. William Robertson, the medical officer of health for the city; Miss Thomas, the matron of the hospital; and Dr. A. Joe, the senior assistant. It is proposed that the memorial should take the shape of a monument at Dr. Ker's grave in Morningside Cemetery, and, if funds permit, the erection of a plaque in the hospital. There are doubtless many old City Hospital residents, both in this country and abroad, who will be desirous of contributing, but whose addresses are not known, and all such are invited to send donations to Mr. Macdonald, steward, City Hospital, Edinburgh.

Physical Education in Scotland.

The annual general meeting of the Association of School Medical Officers, held in Edinburgh on March 23rd, was addressed by Colonel V. E. Gooderson, D.S.O., superintendent of physical education to the Glasgow Education Authority. Physical education was, he said, an aspect of the larger problem of general education, and real physical education could not be relegated to gymnastics and games alone. Physical education might be so conducted as to set a standard of living and behaviour that would surpass the average, and, like moral instruction, in order to be effective, its spirit must pervade the entire curriculum. There should be more appreciation of the value of an active physical life, and the teacher of physical education must know the physical, psychic, and social characteristics of children and the time and manner of their development. Facilities should be provided for all children to express themselves in spontaneous play, but it was also desirable that much in the way of physical and moral development should be obtained by directed play and organized physical expression. Systematic organized play impressed the ideals taught by organization and co-operation. Games, athletics, dancing, and swimming were all special forms of controlled physical activities, and a still more controlled part of physical education was to be found in gymnastics. Gymnastics had a twofold aim—corrective and developmental—and might form a preparatory treatment to surgical measures and also serve as a necessary after-treatment. This part of physical education was worthy of more thorough scientific investigation. Instruction in healthy living and physical efficiency should be related to life rather than to physiology and anatomy. Instruction in hygiene might, to some extent, be correlated with biology and nature study, but it should chiefly collect information regarding the art of preserving a sound body. Only four out of thirty-seven education authorities in Scotland had yet appointed a superintendent of physical training, and five county authorities were still without a single teacher of physical education. Medical examination of children was providing records of size, growth, abnormality, and illness, but not much information was available regarding the relation between physical and mental ability. He thought that peculiarities in mental development might depend upon corresponding changes in physical or physiological development.

Deaconess Hospital, Edinburgh.

The annual meeting of the Church of Scotland Deaconess Hospital, Edinburgh, was held on March 31st. Professor Archibald Main, D.D., presided, and Lord Sands, chairman of the hospital board of management, submitted the annual report. The total number of patients during 1924 had been 5,762. The number of patients treated in the hospital had been somewhat less than previously owing to closure of part of the hospital for some months for reconstruction, but had totalled 705; the number of operations performed had been 625. This number included patients from all over Scotland, including Orkney, Shetland, and the Outer Hebrides. In the children's ward 124 infants, as well as 107 older children, had been treated. A large number of these were received in connexion with the maternity and child welfare scheme of the Edinburgh Public Health Department. The number of out-patients treated during the year had been 4,849, with a total attendance of 15,672. The total income, including that from investments, was £5,576, while the total ordinary expenditure chargeable against income had been £5,541. This leaves the hospital in the satisfactory position of having a small surplus. This, the chairman continued, was a tight fit, but it did fit, and that could not be said of many hospital budgets. Every bed that was endowed lightened the annual burden, and he appealed for further public support in this direction. During the past year an annexe had been added at a cost of nearly £3,000, which was partly defrayed by special subscriptions and partly chargeable to the capital reserve fund. The total sum received from approved societies for treatment of insured persons during the thirteen years since the Act of 1912 came into force had amounted to less than £65, although during the last year alone no fewer than 124 insured persons had been treated in the hospital. In view of the obvious inadequacy of the sums thus received from approved societies in the past in recognition of the benefits conferred by the hospital on their members, the board had again decided not to accept any similar payments in the future, but to treat all insured patients without any payments by approved societies on their behalf. The report was adopted on the motion of Mr. W. J. Stewart, F.R.C.S.E., consulting surgeon to the hospital. Mrs. R. K. Hannay moved a vote of thanks to the staff, to which Dr. John D. Comrie, physician to the hospital, replied. Votes of thanks to the subscribers and chairman respectively were moved by Dr. W. G. Sym and Town Councillor Dr. T. G. Nasmyth.

Massage as an Additional Benefit for Insured Persons.

At the annual meeting of the Edinburgh, Leith, and District Friendly Societies' Council, held in Edinburgh on March 28th, an address on massage and allied treatments as an additional benefit for insured persons was delivered by Miss E. W. Binning, honorary secretary of the Edinburgh Committee of the Chartered Society of Massage and Medical Gymnastics. A scheme, she said, had been proposed to provide for the keeping of a register of members of the Chartered Society of Massage who were willing to provide treatment for insured persons at a flat rate, and also for the organization of clinics for a similar purpose. Such treatment would only be given by members of the society under the orders of a registered medical practitioner. A report was presented by Mr. Thomas J. Addly, embodying the views of the approved societies affiliated to the council for submission to the Royal Commission on National Health

Insurance. This report was said to represent the collective opinions of 100,000 insured persons in the district obtained by a series of special meetings for discussion of national health insurance.

EMPLOYMENT FOR DEAF AND DUMB.

The eighty-fourth annual meeting of subscribers to the Edinburgh Deaf and Dumb Benevolent Society was held on March 25th. Baillie Couston, who was in the chair, said that now that the society had entered into extended premises, which he hoped meant increased activities, subscribers had increased from both town and country. It was very difficult for the ordinary employer to find a niche for the people among whom the society worked, but there must be many openings for shoemakers, tailors, and other employments for which they were fitted. Sheriff J. L. Wark, K.C., said that there were on the roll of the society more than 600 names of deaf and dumb, some also blind, resident in Edinburgh and district. A home for the society's aged and infirm was urgently needed, and the directors hoped in the near future to be able to realize this long-desired want.

SMOKELESS FUEL IN SCOTLAND.

At a conference of the Scottish District of the British Commercial Gas Association, held on March 24th in the Town Hall, Greenock, reference was made to the damage done to health by the pollution of air by smoke. Baillie Millar of Greenock, who presided, gave an address, in the course of which he said that a young Scotsman named Murdoch had been the first to light his house in Cornwall, in the year 1792, with coal gas, so that it was well over a century since gas was first used as a means of illumination. The centenary of the use of gas in Greenock would be celebrated two years hence. At the afternoon session Dr. J. H. G. Whiteford, medical officer of health for Greenock, delivered an address on atmospheric pollution in relation to health. The most efficient epidemic officer was sunlight, which cost the community nothing, and which, when germs were few in number and had not been allowed time to increase, was most effective. This made out an excellent *prima-facie* case for action in regard to smoke abatement. Mr. John Keillor dealt with the contribution of the gas industry towards reducing atmospheric pollution. The only way to put an end to the free pouring out of smoke into the atmosphere was to cease burning coal in its raw state, whether in the factory or in the home. This could be done by treating coal before using in such a way as to produce completely smokeless fuel. The gas produced from coal was clean, smokeless fuel, far more efficient than the coal itself; and in its production there were recovered coke and many other valuable by-products which were used in the manufacture of drugs, fertilizers, perfumes, dyes, and scores of important chemical products. These by-products, if coal was burned raw, were either destroyed at low efficiency or sent up the chimney unburned in the form of smoke and noxious vapours. Dr. C. W. Saleeby in the evening delivered a lecture in which he spoke of the brilliance of the light and clearness of the air in Canadian and American cities as compared with British cities. He did not propose that all houses should be reconstructed to accord with ideas for the abatement of smoke, but it would be reasonable to begin right with the two million houses which the Ministry of Health had promised to construct. The question of smokeless housing had been solved in recent schemes at Luton and Dundee.

Ireland.

LOCAL GOVERNMENT ACT, 1925: IMPORTANT PENSIONS SECTIONS.

THE Local Government Bill (Irish Free State) has been passed by the Dail and Senate and is now law. Since its introduction into the Dail its pensions sections, as the result of representations made by the Irish Medical Committee, have been modified to the advantage of officials generally, especially Poor Law medical officials. The pension rights of an existing medical officer, who was in office at the date of the passing of the Act, and at that date had more than ten years' service as an officer of a local body, can, for the purposes of his pension, choose to remain under Section 8 of the Local Government Act, 1919. It will, however, be necessary for a medical officer who desires to be pensioned under Section 8 of the Act of 1919 to signify in writing within four months after the passing of the Local Government Act, 1925, to the body of which he is an official, that it is his intention *not* to avail himself of all the provisions of Part IV of the Local Government Act, 1925. In the event of a medical officer selecting Section 8 of the Local Government Act, 1919, for pension purposes, Sections 43, 46, 49, 50, 53, 54, 55, and 56 of the Local Government Act, 1925, nevertheless, will be applied to him. These sections do not adversely affect the pension rights of existing medical officers as defined under the Act. For existing medical officers, with less than ten years' service, and future officers the mandatory right to a pension, for the first time provided under Section 8 of the 1919 Act, has been restored to the 1925 Act, and it is not posssible under this Act for any local body to refuse a pension to an official without the consent of the Minister. In this respect Section 44 (1) provides:

> A local body shall, with the consent of the Minister, grant to a pensionable officer in their employment, who either—
>
> (*a*) has attained the age of 65 years and has at least twenty-five years' service, or
>
> (*b*) becomes incapable of discharging the duties of his office with efficiency by reason of permanent infirmity of mind or body, or of old age, and has not less than ten years' service, upon his resigning or otherwise ceasing to hold his office an annual allowance for his life not greater than two-thirds of his yearly salary and emoluments.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE House of Commons adjourned on Thursday, April 9th, for the Easter Recess, after a week spent chiefly in advancing minor legislation. It reassembles on April 28th, when the Budget will be introduced. The second reading of the Therapeutic Substances Bill was moved on April 6th, but objection was taken and the bill was postponed.

Lord Sydenham gave notice that in the House of Lords on April 6th he would call attention to the grievances of the Indian Medical Services, but he did not pursue the subject. Lord Ampthill that day drew attention to the case of civil servants employed by Indian provincial Governments, and Lord Birkenhead, the Secretary for India, promised to look into it.

The Cabinet is understood to have decided that the Factories and Workshops Bill should be introduced before Whitsun and passed into law this session. Its text was considered on April 6th by the Home Affairs Committee of the Cabinet.

Factories and Workshops Bill.

On April 2nd the Medical Committee of the House of Commons met representatives of the British Medical Association and of the certifying factory surgeons to discuss the bearing which the Government's promised Factories and Workshops Bill would have upon the health administration of the country. Opinions were exchanged on the proposed replacement of the system of certifying factory surgeons by "works doctors," either in the employment of the local authorities or appointed by the Ministry of Health. After two hours' discussion of various points it was agreed that the bill as a whole should be supported, but that further consideration of several points in dispute should be postponed until the new version of the bill appeared. No agreement was reached on the particular point, though all were ready to support the bill as a whole. Those attending this conference, over which Dr. Fremantle presided, included Dr. Brackenbury, Dr. Cox, Dr. Wallace Henry, Dr. Bolam, Mr. E. B. Turner, Dr. Courtenay Lord, Dr. Dearden, Dr. Ridley Bailey, and Dr. Beadles.

Health in Scotland.

The House of Commons, on April 6th, debated in Committee the Estimates for the Scottish Board of Health. The Under Secretary of Health for Scotland, Dr. Walter Elliot, said the House was reviewing the vital statistics of an industrial State swept by the full blast of unemployment; 181,000 people totally without work were living on relief, and the fear of anyone responsible for the health of the country was that lowered vitality would be shown in a movement of all sickness curves. Unemployment was now somewhat greater than at the same period last year. Public health last year was unsatisfactory.

The movement of vital statistics was adverse. The year 1923 was the healthiest on record in Scotland, with a death rate of 12.9 per 1,000, but last year it rose to 14.4. Infantile mortality moved from 79 in 1923 to 98 per 1,000 in 1924, and insurance returns showed an increase of 15 to 20 per cent. in sickness last year. Yet although the general death rate moved adversely, the tuberculosis statistics were unchanged, or slightly more favourable. It seemed that in Scotland the sickness curves moved unfavourably owing to an epidemic of influenza in the early part of 1924, and the position now was not as bad as the figures suggested. The investigations did not bear out the suggestion that the long period of unemployment was having a bad effect. Increased infantile mortality seemed to have been due largely to epidemics, which were now slackening. The infantile death rate, which was 132 in the first quarter of the year under review, would fall to 109 in the first quarter of this year, and it might be expected that this year would be healthier for infants than last. The increase in the sickness rate was paralleled in England, where the general death rate had increased by 0.6; in France, also, there was an increase of 0.3 in the death rate though there was no unemployment, and Denmark showed an increase of 0.1. A wave of ill health had passed over Western Europe last year. Some people said that it was due to the sunless summer. In Scotland, for whatever reason, £40,000 more had been spent on drugs than last year. The measles grant, the increased grant for pneumonia and bronchitis, the investigations into infective jaundice, of which the organism had been discovered, were steps taken to improve the public health. Infective jaundice had been shown to occur not only among miners, but among the general public, where it had sometimes been attributed to ill health following influenza. It also occurred in dogs after distemper. It had been made a notifiable disease in Scotland.

Dr. Drummond Shiels, speaking of tuberculosis, said that its general incidence was not a subject for congratulation. In the Spahlinger treatment there was at least a ray of hope, and he asked Dr. Elliot to encourage his department to co-operate with the Ministry of Health to get it tested. He also drew attention to the need for light treatment centres; Scotland was behind in that matter. He referred to tuberculous milk, and declared that ungraded milk was now of poorer quality than when the grading system was introduced.

Registration of Deaths.

Dr. Fremantle, after discussion with the Medical Committee of the House of Commons, has sent the text of the Births and Deaths Registration Bill to be printed. A memorandum states that the object of the bill is to render the law of the certification of death at once simple and complete, so as to leave no room for certification on insufficient evidence, and to eliminate so far as possible all risk of premature burial or failure to detect crime. Provision is made for medical inspection of the body in all cases before certification of the fact of death, and for adequate inquiry before certification of its cause. The bill would require stillbirths to be certified and registered. Relevant clauses are:

3. *Medical Certificate of Fact of Death.*—(1) A medical certificate of the fact of every death or stillbirth shall be given by a registered medical practitioner who has viewed and examined the dead body and is satisfied that life is extinct. (2) Such practitioner shall, whenever reasonably possible, be the practitioner, if any, who last attended the deceased person during life or was present at the stillbirth. (3) If no such practitioner so attended the deceased or was present at the stillbirth, it shall be the duty of the person legally responsible for notifying the death in accordance with Section 10 or Section 11, as the case may be, of the Births and Deaths Registration Act, 1874, to secure a registered practitioner to certify the fact of death or of stillbirth in accordance with this Act. (4) If such person for any reason is unable to secure the services of a registered medical practitioner for the purpose aforesaid, then it shall be the duty of that person to notify the registrar of the district in which the death or stillbirth occurred of this fact, and a registrar receiving such information shall within twenty-four hours thereafter inform the coroner of the said district, whose duty it shall then be to appoint a registered medical practitioner for the purpose.

4. *Medical Certificate of Cause of Death.*—(1) A medical certificate of the cause of death shall be given by a registered medical practitioner wherever possible who personally has attended the deceased person professionally during life, and if no such practitioner has so attended the deceased person, or the person so attending is unable to give or does not give the registered medical certificate, it shall be the duty of the registrar to report the fact to the coroner of the district in which the death has occurred, and it shall be the duty of a coroner, upon receiving such a report from a registrar, forthwith to satisfy himself concerning the cause of death and to issue the said certificate of the cause of death to the registrar.

(2) A registered medical practitioner shall not be required to make an analysis of the contents of the stomach, intestines, or any other part of the body of a deceased person, for the purpose of establishing the cause of death, if he states that he is unable or unwilling to do so.

13 (3) Nothing in this Act shall affect the provisions of the Anatomy Act, 1832, or any Act amending that Act.

Provision is also made in the bill to ensure the orderly disposal of the dead and to prevent retention of dead bodies before disposal in those cases which are not already covered by the Public Health Acts. The bill, which does not apply to Scotland or Northern Ireland, is backed by Mr. Gerald Hurst, Mr. Morris, Dr. Haden Guest, and Sir Henry Slesser.

Pensions.

Employment of Ex-full-time Medical Officers.—Colonel Sir Arthur Holbrook, on April 1st, asked the Minister of Pensions whether it was intended that ex-full-time medical officers on sessional medical board work should be given preference for such work over medical men who had not been full-time medical officers of the Ministry; and, if so, whether instructions to that effect had been given, or would now be given, to all area deputy commissioners for their future guidance. Colonel Stanley, repeating an assurance given on March 11th, said it was the intention that former full-time salaried medical officers of the Ministry of Pensions should generally be given preference in the allocation of part-time sessional work, and instructions were being issued accordingly.

Final Awards.—On April 2nd, Colonel Stanley said that no instructions had been issued to members of the medical boards or the audit staff that the assessment of pensions should be made on the minimum possible basis. Since November 1st the rate of assessment had been reduced after medical examination in 12,200 cases, or 16 per cent. of the total, and increased in 21,300 cases, or 28 per cent. of the total. The net result of reassessment during the period had been an average increase in the degree of disablement assessed of 2.7 per cent.

Erroneous Awards.—In reply to questions on April 2nd, Colonel Stanley said that an erroneous award was defined by the Ministry of Pensions as an award which the Minister found had been erroneously declared final because, as a result of a course of medical treatment and observation, it was seen to have involved a serious and permanent underestimate of the normal extent of disablement in consequence of an error of medical diagnosis or prognosis. The cases in which a serious error was suggested were few. Each had to be judged on its merits, and the Minister had no authority to modify a statutory final award where no more than a slight temporary worsening could be shown. For such cases the scheme of final awards included the provision of treatment as an essential feature. Every case where the responsible advisers, medical and other, of the Minister satisfied him that the conditions stated above were fulfilled was recommended for a grant under special sanction. The working of the arrangements was being carefully watched, and as the local medical staff of the Ministry understood better the nature of the problem involved their recommendations were found in an increasing majority of cases to be justified. In reply to another question, Colonel Stanley stated that the total number of out-of-time cases which the appeal tribunals thought they were debarred from considering owing only to the expiration of the time limit was diminishing, but an increasing proportion represented cases in which the man was genuinely prevented by unavoidable cause from appealing within the statutory time. The arrangement for the hearing of such cases, coupled with the further provision for correction of cases in which a final award was found to be erroneous, was, in the opinion of the Minister, adequate.

Pay of Indian Medical Service.—Brigadier-General Charteris asked the Under Secretary of State for India, on April 6th, whether the recent augmentation of pay of British officers in India, both of the British Army and of the Indian Army, applied to all officers except those of the Royal Army Medical Corps, the Indian Medical Service, the Army Dental Corps, and the Royal Army Veterinary Corps; that this was certain to prejudice future recruitments for these essential services in India; and what was the reason for this decision. Lord Winterton replied that officers of the Indian Medical Service in military employ had been granted the same pay concession as those in civil employ, as a result of the recommendations of the Commission on the Superior Civil Services in India, and the same passage concessions as had recently been granted to officers of the Indian Army. The case of the other services mentioned had been reserved for further consideration, as there was a possibility of changes affecting them in the near future.

Acetone and Sickness.—In reply to a further question by Mr. Oliver (see April 4th, p. 678) as to the high rate of sickness among operatives engaged in the manufacture of artificial silk from acetone, the Home Secretary said that the matter was highly technical and was still under investigation. The works had been visited by a medical inspector, who reported that a number of the cases of sickness which recently occurred there were influenza, and that the effects of acetone on the workers had not been so serious as represented. He stated, however, that the workers were affected to some extent and that improvements were needed in the arrangements. One of the engineering inspectors would visit the works this week and advise on the alterations required. As soon as his report was received steps would be taken without delay to secure the necessary improvements.

Cannabis Indica.—In reply to questions on April 2nd, the Home Secretary said: (1) That there was no power to postpone the operation of the Order scheduling cannabis indica as a poison. Under the statute, the resolution of the Council of the Pharmaceutical Society for the inclusion of a substance in the poisons schedule took effect one month after the Order of the Privy Council Office approving it had been advertised in the *London Gazette*. As the resolution was passed as long ago as last

August, ample notice had been given to all interested parties, and there did not appear to be any grounds on which the Government could properly intervene now. He was sure that no harsh measures would be taken by the Pharmaceutical Society in the enforcement of the law. (2) That the Government had not heard that any foreign Powers had yet ratified the convention concluded by the second Opium Conference at Geneva. The Central Board proposed in that convention could not come into existence until the convention had been ratified by ten Powers.

Women Members of Asylum Visiting Committees.—Sir Robert Newman asked the Minister of Health, on April 2nd, whether over 30,000 women patients of unsound mind were detained in borough and county mental hospitals where there was no lady member on the visiting committee; and whether he proposed to take steps to make it compulsory, if necessary by legislation, that in all public institutions where women of unsound mind were detained there should be some of their own sex on the visiting committees. Mr. Neville Chamberlain replied that the importance of the presence of women on visiting committees was fully recognized, and the matter had already been brought to the notice of the Royal Commission on Lunacy. A clause ensuring the appointment of women visitors had been included in a bill the Ministry of Health introduced in 1923.

Scarlet Fever Toxin-antitoxin.—Dr. Fremantle asked the Minister of Health, on April 2nd, if his department and the Medical Research Council had now sufficiently examined the efficacy of the toxin and antitoxin for test, prevention, and cure of scarlet fever, as officially used in several of the United States of America, and with what result. Mr. Chamberlain said that investigations were being actively pursued by the Ministry of Health and by the Medical Research Council, and the results would be published from time to time. These investigations entailed prolonged laboratory and clinical observations before a confident statement could be made of the efficacy of these procedures on the strength of tests in this country.

Expenditure on Medical Research.—Mr. John Williams asked the Minister of Health, on April 2nd, the amount of money spent on the prevention and cure of tuberculosis; the amount spent similarly on cancer; and the amount spent on research work for the prevention and cure of disease. Mr. Neville Chamberlain replied that it was difficult to estimate the expenditure from public funds on the prevention of tuberculosis. The estimated gross expenditure on treatment by local authorities during the financial year 1924-5 was £2,850,000. No State-aided scheme was in force for the treatment of cancer. On the co-ordinating Departmental Committee on Cancer at the Ministry of Health £2,300 was spent in 1924-5. The vote for the Medical Research Council in the same year was £140,000, and during that year approximately £5,000 was spent out of the Ministry of Health vote on research work, including the work of the Committee on Cancer.

The Spahlinger Treatment.—In reply to Mr. Thomas Williams on April 2nd, the Minister of Health said that all practicable steps had been taken by the Ministry of Health to secure, for scientific investigation, a supply of M. Spahlinger's preparations for the treatment of tuberculosis, but the Ministry was still without information as to when such a supply would be available in this country. The question of giving financial assistance to any local authority which obtained a supply of this serum for use in its institutions would be considered if and when it arose.

Approved Societies and Hospitals.—Mr. Tinne, on April 2nd, asked the Minister of Health whether, having regard to the unremunerated services rendered by voluntary hospitals to insured persons, he would bring influence to bear upon the approved societies to make suitable contributions out of the unspent health insurance surplus to the funds of voluntary hospitals treating insured persons. Mr. Chamberlain replied that for some time considerable sums had been paid yearly by societies to voluntary hospitals out of disposable surplus, and he hoped such sums would be increased in the future. The question would doubtless be reviewed by the Royal Commission on National Health Insurance.

Insurance.—The Minister of Health has stated that no occasion has arisen for approved societies to keep statistics of the number of persons in receipt of sickness benefits for each year. In 1924 the insured persons numbered 13,573,000, and £13,028,000 was paid in sickness benefit.

Notes in Brief.

Down to March 30th 71 cases of small-pox were notified in the urban district of Kettering, and 7 in the rural district. Of the 78 patients, the vaccinal condition of one was doubtful, 71 were stated to have been vaccinated in infancy, and one at 5 years old. None had been revaccinated, and all, except one aged 25, were over 39 years old.

In reply to a question as to a bill promoted by the Bradford Corporation to acquire certain powers now vested in boards of guardians, Sir Kingsley Wood said that he could not anticipate the Minister of Health's statement on that bill, nor the proposals for Poor Law reform which the Minister hoped to submit in due course.

The Home Secretary states that he has no power to exempt hospital tombolas from the provisions of the Lottery Act.

No statistics are available to show the number of unemployed who died during 1924, nor the number temporarily taken off the unemployment registers through sickness.

In reply to Mr. Clarry, the Office of Works states that to instal a gymnasium at the House of Commons for the purpose of ensuring the health and physical fitness of members would not be practicable.

In reply to Dr. Graham Little, on April 2nd, Sir Burton Chadwick, Parliamentary Secretary of the Board of Trade, said he was aware that certain special types of *x*-ray apparatus were not at present produced in this country, but he was not prepared to introduce a bill removing them from the schedule of the Safeguarding of Industries Act.

Eleven slum clearance schemes have been approved since November 1st, 1924, and sixty-nine in all since January 1st, 1919. Clearance is in progress or complete in sixteen schemes.

The approximate number of beneficiaries from the Ministry of Pensions was 3,004,000 in 1921, and 2,080,000 in 1924.

Mr. Neville Chamberlain does not propose to introduce a Milk and Dairies Bill this session.

The Chartered Associations (Protection of Names and Uniforms) Bill, which passed through Committee in the House of Lords on April 6th, is designed to prohibit the wearing by unauthorized persons of the uniforms of nursing and other associations.

The Home Secretary informed Mr. George Harvey on April 9th that he was considering the introduction of a bill to give effect to those parts of the International Convention, signed at Geneva in 1921, on the use of white lead in painting buildings, on which there was general agreement.

The Minister of Health estimates the number of persons between 65 and 70 years of age at 1,029,056.

M.P.s and Osteopathy.

A circular signed by twenty-one members of Parliament invited M.P.s to attend a meeting on March 31st to meet the president and other members of the British Osteopathic Association, and to hear an address by Dr. W. Kelman Macdonald of Edinburgh on the objects of the association and the present position of osteopathy. About thirty members of Parliament attended.

Mr. Basil Peto, taking the chair, said there was no recognized school of osteopathy in this country nor any board of osteopathy, with the result that the public was exposed to charlatans. In forty-eight States of America this new science was recognized, and there were immense numbers of students. He felt it time that those in the House who were interested in the subject should ask the Ministry of Health to make this new body of knowledge available and to save this country from being a C3 nation. At present the General Medical Council held that the administration of an anaesthetic for a manipulative surgeon or osteopath was infamous conduct and rendered the offender liable to the taking away of his degree. Should they not say that the time had come when they must declare there was something more than the ordinary physician's art of healing by drugs? He suggested the establishment of a committee to uphold the interests of osteopaths in the House of Commons and to press for their recognition.

Dr. Kelman Macdonald said that since 1910 he had entirely given up the use of drugs in dealing with the sick, save during service years when he had more or less to conform to orthodox practice. Osteopathy could relieve or cure most diseases by ensuring a good arterial and nerve supply to the tissues and by ensuring that the veins and lymphatics which carried away the waste products remained freely open. It did not matter what the discoveries of the future might be in the chemical or electrical world, the great principle of structural integrity remained, and on it osteopathy was founded. A disturbed artery determined to an hour the onset of disease. He quoted the declaration by Dr. Still, the founder of osteopathy, that all diseases were mere effects. It must be admitted that some of the early schools of osteopathy did not give a tremendously adequate training in general osteopathy. But the American Osteopathic Association now had 4,000 members, and there were seven approved osteopathic colleges in America, each with a four years' course. At present 4,000 persons were taking this course to be osteopathic physicians. The truth was that the osteopathic colleges were attracting the best type of American manhood and womanhood. The Editor of the BRITISH MEDICAL JOURNAL looked on osteopathy as a cult, but there were now more than 10,000 osteopaths, so that it was "some cult." Dr. Macdonald went on to explain that "the backbone is the happy hunting ground of the osteopath." The osteopath studied the tissues, but the bones interested him most, and the scientific adjustment of a bone out of place formed the keystone of his therapy. The osteopath handled with special success the treatment of those unfortunate persons called neurotics. The osteopath broke through the vicious circle causing neurasthenia by moving soft tissue and making a lesioned vertebra retrace the path it had taken from normality. Osteopaths were able to treat with success a large number of diseases which had defeated the ordinary practitioner. Was it not refreshing that there was a definite framework of abnormality to be dealt with when drugs, psycho-analysis, and the short-circuiting of the bowel or the removal of bowel "kinks" had failed? The osteopaths had broken away from the drug-giving school of medicine. They wished to remain outside and to have another fifty years to demonstrate their art. Their discovery would be smothered by the medical profession if the osteopaths were absorbed now, but a change would take place. The fetish of the bottle of medicine would go. Children died officially of measles, really of bronchopneumonia, because their bodies were not encouraged to eliminate poisons. Was it any wonder that a man who had sat at a desk in a faulty position for twenty years should suffer from constipation and religious doubts? The osteopath would remove the curve in his back, ease his subconscious mind, and persuade him that he had no use for the surgeon. Osteopathy appealed to all classes. It appealed pre-eminently to theosophists, lawyers, and politicians. Six registered British medical practitioners were practising osteopathy, and nearly 120,000 patients had been treated in this country. Impostors from America had founded schools of osteopathy in this country, and had issued diplomas to pupils who were now practising in the Midlands. They held it time that the British public was protected from this. British medical practitioners should be granted a diploma by the British Osteopathic Association after one year's training, for which many were anxious. The British Osteopathic Association was anxious to demand or to

force the General Medical Council to allow anaesthetists to work with registered osteopaths. Think, he said, of the amount of suffering which could be avoided if all school children could have their backbones treated by osteopaths. Only 20 per cent. of children had normal backbones. Orthodox medicine was not a science but a collection of empirical procedures without any underlying principle. Osteopathy was an art with a basic principle.

Dr. Drummond Shiels asked whether at the osteopathic school at Kirksville there was nowadays a departure from the principles of osteopathy and a teaching of general surgery. Dr. Macdonald said that was because the State boards insisted on asking questions on general surgery before issuing a certificate. He admitted that the position was similar in this country, but he was asking recognition for a special school of osteopathy if they started one.

Dr. Graham Little said the osteopaths might possess valuable special knowledge, but in this country such special knowledge was acquired at the end of a general training. The osteopaths asked them to recognize a short cut. They would command more respect if they recognized that their claim to learn all about the spinal column in four years was absurd.

Dr. Salter asked whether cancer, tuberculosis, and small-pox were outside the field of osteopathy. Dr. Macdonald said that he treated tuberculosis by osteopathy, but not cancer. That he sent at once to the surgeon.

Mrs. Hilton Philipson cited the case of a young woman with consumption who went to an osteopath against the advice of her physician, with the result that the lung had been injured and haemorrhage caused. Was that possible? If so, was the osteopath one of the charlatans against whom Dr. Macdonald warned them? Dr. Macdonald answered that such a mishap was possible. He had seen a case.

Another speaker drew attention to the fact that a bill for the registration of medical herbalists had been circulated. Was their application to be supported by the meeting?

Dr. Salter inquired whether the osteopaths were asking for power to sign death certificates. Dr. Macdonald replied that they definitely did not.

Dr. Fremantle called attention to Dr. Macdonald's declaration that framework abnormalities were the basis of ill health. Were they the cause of small-pox and tuberculosis? Dr. Macdonald replied that the tubercle bacillus could not make a start without abnormality of the spinal column. The osteopath worked to improve the blood supply to the affected area. Dr. Fremantle then asked whether histology, physiology, and anatomy were taught to osteopathic students. Dr. Macdonald replied that they were part of the preliminary examination.

Mr. Rosslyn Mitchell suggested that a consultative committee should be appointed so that the members of Parliament participating should not be regarded as pledged to the advocacy of osteopathy. Mr. Mackenzie Livingstone and Mr. Arthur Greenwood were appointed to summon a meeting of all members interested in the subject, who might act as such a committee.

Sir Herbert Barker was present, but did not speak before this decision was taken. Afterwards he briefly declared his interest in the case put forward by the osteopaths.

Correspondence.

THE IMMEDIATE AND REMOTE EFFECTS OF SUNLIGHT.

SIR,—The note of warning sounded by Sir George Lenthal Cheatle (JOURNAL, March 28th, p. 631) with regard to the possibility of harmful effects to the skin from ultra-violet irradiation will, I am sure, find support from all those who are genuinely anxious that this valuable therapeutic aid shall not be brought into discredit by extravagant claims as to the conditions it is likely to benefit.

Unfortunately, when a remedy for certain diseases, however old and well tried, becomes popularized in the lay press the public swings the pendulum too far to the other extreme. Those who have had experience of this treatment know well, not only the possibility of overdose, but also the possibility of harmful exacerbations occurring. Cases of quiescent phthisis have been known to be lighted up in circumstances pointing strongly to the injudicious use of ultra-violet rays, and I have seen a case of arthritis react with a recrudescence of acute abdominal symptoms in the region of the appendix which previously had not given trouble for many years.

Two examples of how "fools rush in" will, I hope, give emphasis to Sir Lenthal Cheatle's call for care and judgement, especially when every masseuse and electrical clinic are giving or recommending sun-ray baths for every ailment. A manufacturer tried to press upon me a stand with a revolving chair with no less than six tungsten arcs ranged closely round it! And he assured me that "you can easily obtain an erythema dose in three minutes"! Sir Henry Gauvain has emphasized again and again that we have no definite or final evidence that bronzing of the skin can be correlated with satisfactory clinical results, while the danger of overdosage does not seem to have been considered.

On another occasion a manufacturer of electrical equipment was approached by a firm of builders to supply ultra-violet arc lamps in the bath rooms of some houses that were being erected!—I am, etc.,

London, W.1, April 2nd. C. B. HEALD.

BACTERIAL VACCINES.

SIR,—May I draw attention to a paper published in the JOURNAL of December 13th last (p. 1103) by Dr. L. S. P. Davidson on the effects of physical and chemical agencies on bacterial vaccines, read at the Annual Meeting of the Association at Bradford?

The opening statement reads: "For some considerable time it has been my opinion that physical and chemical agencies when applied to a vaccine would result in a great part of its antigenic value being lost." He next refers to his earlier experiments upon rabbits with typhoid vaccine emulsion and "detoxicated" typhoid vaccine, and states that he immunized rabbits with the former and inoculated rabbits with the latter, but on subsequently testing the serums of the six animals by the agglutination and complement fixation tests comes to the conclusion that, "as evidenced by the antibody response to the different antigens, very marked diminution in antigenic value was noted in the case of the detoxicated vaccine." The presumption is that he regards agglutination and complement fixation as evidence of formation of antibody, and in the remainder of his most interesting paper—which affords much food for thought—he develops the theme by means of a series of experiments in which *B. tuberculosis*, *B. suipestifer*, and the pneumococcus are employed.

The author's conclusions bear out his opening statement. He says:

"(1) As shown by *in vitro* immunity reactions, the antigenic values of detoxicated and defatted vaccines are in no way comparable with those of the ordinary heat-killed bacillary emulsions in saline.

"(2) It would therefore appear that the physical and chemical processes involved in the preparation of the detoxicated and defatted vaccines are responsible for the marked loss of antigenic value."

I trust he will continue his experiments, and in doing so will take account of the experience of two workers, S. Rowland and A. S. Leyton (Grünbaum)—both now passed away—with whom I had the privilege of some association. I refer particularly to Rowland's work on the plague bacillus, for it was from a growth of this organism that he isolated a toxic nucleo-protein with which he immunized horses and so obtained a serum showing marked curative and protective properties when administered to rats infected by the same strain of organism.[1]

With reference to the interpretation of Leyton's phenomenon of specific agglutination, I can confirm unreservedly that even under the stringent conditions with which he surrounded this test—namely, microscopic observation only, a definite degree of serum dilution, a stated and limited period of observation, a definite stage of the illness for making the test—he always recognized the possibility of so large an error as 1 in 8, so far as the typhoid group of infections is concerned. At no time did he consider the agglutination method other than of application in diagnosis only, to be read generally in conjunction with clinical findings. I never heard him state otherwise than that as the outcome of many years' observations his conviction remained that agglutination bore no relation to immunity. Notwithstanding the large possibility of error when applied to isolated cases, no one can doubt the exceeding value of his agglutination test when applied to a series of cases in presence of an outbreak—and this is the recognized upper limit of its value.

Dr. Davidson, in his experiments upon rabbits infected with the *B. suipestifer*, confirms observations of previous workers as to failure to protect against a fatal dose when the animals, previously prepared by varying vaccines, detoxicated and otherwise, are subsequently given an ascertained minimum lethal dose of the living organism, with the result that practically all the "prepared" animals

[1] Rowland's publications upon this and cognate subjects appear in the *Journal of Hygiene*, vol. xi, December, 1911, pp. 11 et seq., and in the *Plague Supplement*, Nos. III and IV, vol. xiii (1914) and vol. xiv (1915) respectively.

succumbed. His final statement leaves much room for thought:

"The conclusion to be drawn from this protection experiment is that the virulence of the test culture was of such high grade that the increased resistance produced by vaccine immunization was still insufficient to protect these animals from lethal doses."

He is here evidently wedded to the view that certain serological phenomena—namely, agglutination and complement fixation—are terms interchangeable with increase of natural immunity. Yet all his experiments are directly to the contrary.

I trust he will bring forward fresh evidence in support of his views, for many practitioners, including myself, are by no means happy upon the subject, and we would like more enlightenment. This matter has much too important a bearing on clinical medicine to be disposed of by generalizations based on somewhat narrow laboratory tests involving misinterpretation and misapplication of fundamental phenomena whose value and limitations have been recognized and confirmed by many clinical workers. Detoxicated and other vaccines are now undergoing extensive clinical trials; as matters stand, time alone will tell which of the preparations are likely to survive.—I am, etc.,

MYER COPLANS.

London, N.W.4, March 23rd.

THE PAINFUL DYSPEPSIAS.

SIR,—In your issue of March 21st (p. 556), in the report of a recent meeting of the Brighton and Sussex Medico-Chirurgical Society, there are a few lines on my remarks during the discussion on Mr. Fletcher's paper. As these stand they are calculated to give a somewhat erroneous idea of my meaning, and therefore I hope you will allow me now to try to correct any such false impression. It is, I know, very easy for a few unprepared remarks to be misinterpreted.

What I wished to convey was this—that too much must not be expected of the mere black and white evidence of an *x*-ray photograph (or series of photographs) *per se*; and that, in most cases, everything depends upon the capacity of the radiologist making the examination, and his ability to interpret what he sees. The screen examination in a gastric or duodenal case is much more important than any photograph, or series of photographs. The *x*-ray evidence obtained must be taken in conjunction with the clinical evidence, and the diagnosis arrived at by carefully considering both.

I am a firm believer in the great value of *x*-ray evidence in these gastric and intestinal cases, and think that there are very few of them in which we can afford to do without it. The *x*-ray investigation is as important as any other method, and of more value than some. It is very often the deciding factor in arriving at a diagnosis. The trouble is that it is frequently used in much too loose a way, and, as I said before, too much is often expected of black and white evidence *per se*; *x*-ray investigations of these cases—just like ordinary clinical investigations—depend for their value upon the capacity and intelligence of the man who carries them out.

In speaking of gastric carcinoma, my chief object was to point out the value of *x* rays in the general diagnosis of these cases, and not only to lay stress on the special point of their value in deciding the possibility of operation. It has been stated that, at the Mayo Clinic, 95 per cent. of cases of gastric carcinoma have been diagnosed by *x* rays.—I am, etc.,

W. BARRINGTON PROWSE,
Honorary Radiologist, Sussex County Hospital.

Brighton, March 22nd.

RESPIRATORY ORTHOPAEDICS.

SIR,—I am gratified to learn from the letter of Mr. Alan H. Todd (March 28th, p. 635) that the orthopaedic specialist is actively interested in the difficult problem of the adenoid child, for it is to him that we must look for help in certain aspects of it. How difficult that problem is, and how deeply the whole question of national health is involved therein, can be fully realized only by those who have to deal with it practically.

Upon the otological side the great advances of quite recent years (I need only mention the perfection of the modern tonsil and adenoid technique, or the splendid work of Friel on zinc ionization in tympanic disease) are sufficient to keep alive the hope that the school otologist will yet rid the world of all the dreadful consequences of middle-ear disease. We are accustomed to look upon the surgery of the temporal bone, with its wonderful elaborations and extensions, as one of the triumphs of modern medicine, and those of us who practise it are very rightly and properly proud of whatever degree of skill we may individually possess. But the school otologist must in a special degree look upon his most successful case of the kind as a compromise at the best, for the very reason of his existence is that he may render major operations unnecessary. I have for many years believed, and never tire of preaching to the few who will listen, that when the importance of the adenoid problem is universally realized the surgery of the temporal bone will always begin, and usually end, in the nasopharynx.

There is no advance in the treatment of the respiratory complications which can be in any way compared to the otological; mainly, it is to be supposed, because we have in the respiratory mechanism of the adenoid child a problem which is as yet unsolved. It is commonly held, for example, and I believe taught by authority, that the insufficient aeration of the blood and the thoracic deformity of the adenoid child are due to his being unable to take in enough air because of the mechanical obstruction by the growth. That cannot be the explanation in the many cases with bad adenoids without enlargement of the faucial tonsils. There is in these no mechanical obstruction between the outer air and the glottis; and, the mouth being wider than the nares, it would be possible to inspire through it a correspondingly greater volume of air but for the presence of some factor of deeper physiological significance than mechanical obstruction of the posterior nares. The position of expiration which the thoracic structures of the adenoid child tend always to assume can be explained only by the recognition of this further factor, which is reflex stimulation.

1. The presence of the adenoid growth in the nasopharynx sends constant expiratory stimuli to the respiratory centre in the medulla through the glosso-pharyngeal nerve.

2. The inspiration of raw air by the mouth irritates the sensory nerve of the larynx (the superior laryngeal). The purely expiratory nature of this stimulation reinforces the expiratory reflexes from the nasopharynx through the glosso-pharyngeal.

3. Such irritation of the superior laryngeal nerve, a constant factor in every case, is a vagal stimulation which, by decreasing the calibre of the bronchioles, furthermore increases the resistance to the inspired current.

The effects of these constant impulses to expiration are seen in the resultant deformity of the thoracic cage with all its associated disasters. In the course of a very short time there is established an abnormal respiratory rhythm, which is not greatly influenced by the mere surgical removal of the naso-pharyngeal growth which initiated it. Operation certainly provides an airway through which the child can breathe if he will, but, as Mr. Todd so truly says, "usually he does not will." The adenoid subject never takes a deep breath—partly because he is too engrossed in the child's subjective world of reverie and make-believe to overcome a physical deficiency by an act of will (that is to say, he cannot be bothered), but chiefly because even such shallow diaphragm-breathing as he has become accustomed to is a constant struggle against reflex expiratory impulses and the resulting thoracic disability.

Respiratory exercises for the correction of abnormal rhythm are useless unless scientifically devised so as to be applicable in their different forms to the several varieties of disability. The form of exercise which improves or cures a case of faulty breathing with a mobile thorax is useless or actually harmful where there is shallow diaphragm-breathing with rigid thorax and a dilated right heart.—I am, etc.,

F. PEARCE STURM, Ch.M.Aberd.

Ear and Throat Clinic, Leigh, Lancs,
April 5th.

DISEASE AND HABITS OF INTEMPERANCE.

SIR,—I enclose a rather entertaining card. Great capital is being made here [Breslau, Germany] by those interested in liquor out of figures purporting to be based on statistics compiled for the British Medical Association. Some of the professors here would like to be able to refute these figures if they have been falsified. I should be exceedingly grateful if you would very kindly inform me (1) if these figures accurately represent the result of the statistics, and (2) where I can find an account of the methods employed in the investigation.—I am, etc.,

W. N. GOLDSCHMIDT, M.R.C.P.Lond.

(Dated) Breslau, March 21st.

***The figures alluded to are taken from the report of the Collective Investigation Committee on the Connexion of Disease with Habits of Intemperance. It was published in the BRITISH MEDICAL JOURNAL of June 23rd, 1888, where it filled twelve pages. It was compiled by Dr. (now Sir) Isambard Owen, who acted as secretary of the committee. We referred the above letter to him and he has been good enough to send the following note:

The inquiry reported on was not primarily concerned with vital statistics, though some interesting information bearing on the subject was incidentally obtained. Its object was to ascertain what particular forms of disease were especially attributable to alcoholic excess. The table quoted was followed in the report by a statement that the figure for the total abstainers was presumably greatly influenced by the low average age of then living total abstainers as compared with that of the other classes, the ranks of abstainers having been recently largely recruited by propaganda among the young. This was further shown by additional calculations to have been actually the case. The final conclusion on this point was that "We have not in these returns the means of coming to any conclusion as to the relative duration of life of total abstainers and habitually temperate drinkers of alcoholic liquors."

An enterprising journalist communicated the table to the lay press, suppressing the context and announcing the bare figures as the "conclusions" of the British Medical Association. No great harm would have been done by this, had not a certain number of zealots for total abstinence fallen into the trap, and, without taking the trouble to verify the accuracy of the newspaper paragraphs, incontinently rushed into print to combat these imaginary "conclusions" by wholesale charges of incompetence, bias, and so forth, against everybody concerned with the report. This brought the liquor trade into the field, and the supposed "conclusions" were soon transferred to large posters and displayed in a number of public houses and bars in various parts of the Kingdom.

I wrote at that time some two hundred letters to the press to warn the public against these notices and similar statements, and was backed up by the then ablest advocate of total abstinence—the late Dr. Norman Kerr. The notices disappeared, but some germs of the malady seem to have survived to cause an occasional sporadic outbreak.

RADIUM EMANATION (RADON).

SIR,—In reply to the letter of Mr. Hayward Pinch in your issue of April 4th (p. 681), the Radium Committee of the Middlesex Hospital does not hold itself responsible for certain unjustifiable claims which have appeared in the press respecting the new Radon Centre at the Middlesex Hospital. This centre has been established at the request of the Medical Research Council, and with the financial support of the British Empire Cancer Campaign, to enable a wider research to be made into the uses of radium emanation. The services of the new installation will not be restricted to the Middlesex Hospital, but will be available for certain other hospitals.

The Middlesex Hospital has always recognized the valuable pioneer work of other centres in the use of emanation in this country, and has already in the lay press disclaimed priority in this field.—I am, etc.,

W. SAMPSON HANDLEY,
Chairman of the Radium Committee of the Middlesex Hospital.

April 6th.

Obituary.

ABRAHAM EMRYS JONES, M.D.

DR. ABRAHAM EMRYS JONES, who died at his residence in Manchester on March 31st, was born in 1852 at Llanarth, Cardiganshire. His early education was received at Cardigan Grammar School, and later at a school at Frome in Somerset. He left school at the age of 16, and developed an active interest in politics. Later, however, he turned to medicine, and after studying in Glasgow graduated M.B., C.M., and L.M. at the University of Edinburgh in 1875. In the following year he obtained the diploma of Membership of the Royal College of Surgeons of England. In 1877, for a thesis on work connected with the eye, he received the degree of M.D.Edin. with special commendation. In 1875 he held the appointment of resident medical officer to the Hulme Dispensary, Manchester, and shortly afterwards was appointed house-surgeon to the Manchester Royal Eye Hospital, becoming honorary assistant surgeon to that hospital in 1879. He held numerous other appointments during his active career, including those of consulting ophthalmic surgeon to the Bolton Infirmary, honorary oculist to the Barnes Home Industrial Schools, the Jubilee Schools, and the Warehousemen and Clerks' Schools. In addition he was a medical referee under the Workmen's Compensation Act for injuries to the eye. He contributed a number of papers to medical literature on ophthalmic subjects. From time to time he delivered a series of lectures and discourses on various subjects, and one of his addresses on the disposal of the dead, under the presidency of Cardinal Vaughan, then Bishop of Salford, must be specially mentioned. This lecture led to the formation of the Manchester Cremation Society and the erection of the crematorium at Manchester, of which he was a strong supporter. His name will always be associated with many public movements, but owing to his later dislike of politics he never took an active part in municipal affairs, but he was a justice of the peace for the city of Manchester. Politically Dr. Emrys Jones was a liberal. He was patron and president of the Welsh National Society of Manchester, and as a member of the Manchester Literary Club he read papers before it on Welsh and other subjects. He was a member of the British Medical Association, of the Manchester Ophthalmic Society, and of the Medical Board of the University of Wales. In 1911 he was elected president of the Manchester Medical Society; his presidential address was devoted to the life of Lord Lister, and contained many interesting references to his work as a surgeon and a teacher.

During the active part of his career he occupied a prominent position as one of the leading eye specialists in the district. Though he retired from active practice many years ago he still continued to live at his old consulting rooms in St. John Street, and was to be seen almost daily taking his walks in Manchester. His favourite pursuits, apart from his work, were literature and music, and his love of nature and romance was greatly deepened by his Welsh character and temperament. The funeral service was held at the Manchester Crematorium on April 3rd, and was attended by a number of his medical colleagues. Representatives were present from the Manchester Royal Eye Hospital and the Manchester and Salford Sanitary Association.

JAMES E. KELLY, M.D., F.R.C.S.I.,

New York.

A VERY original and interesting personality, in the person of James E. Kelly of New York, died in that city on February 28th. He was born at Oakmount, co. Galway, eighty years ago, and studied medicine in Dublin, becoming F.R.C.S.I. and surgeon to the Jervis Street Hospital, where he soon acquired a great reputation as a brilliant and original surgeon, a most attractive and popular lecturer in surgery at the hospital and the Ledwich Medical School, since merged in the school of the Royal College of Surgeons in Ireland. He was beloved alike by students and patients for his many alluring qualities of head and heart. In 1883 he was established in Dublin as a surgeon of great

eminence, with a very large practice and a brilliant professional future in front of him, contributing arresting articles to the surgical journals and to *Bryant's Surgery*, a standard book of the period. To the amazement of his hosts of friends he suddenly, under the influence of Henry George, decided to leave Dublin and sacrifice his established position because he felt the political atmosphere of Dublin at that time was oppressive to his strong democratic views. He cut his cable and sailed with his young and numerous family—a nineteenth century pilgrim—to Boston; but with a very different political and religious ideal from that of the earlier pilgrims. He became surgeon to the largest hospital in Boston—the Charity. He only spent three years in Boston, as even there he did not find that full democratic freedom which he yearned for. So to New York he migrated, where he practised and flourished for forty years. He was surgeon on the staff of the City, the Gouverneur, and the French Hospitals, professor of anatomy and surgery at the Post-Graduate Medical Society (New York), and founder of the New York Celtic Medical Society. In New York, as in Dublin, he soon established a wonderful reputation for surgical skill of the highest order, great originality, and independence of character that almost verged, in its integrity, on the quixotic: the loss of fees or patients never weighed for a second with J. E. Kelly if any small or big point of principle or professional dignity was at stake. Almost to the last he continued the practice of his profession. He was a man of extraordinary physical and mental energy. Almost daily, through his long years of residence in New York, he went to the New York Athletic Club ground to cycle and box with the well known amateur and professional boxers of the day, and indulged in other athletic pursuits. His activities were numerous and his personality was of arresting interest to all who came within the charmed circle of his friendship. He leaves behind him his widow (formerly Miss Morrogh of Dublin), two sons (one a distinguished ophthalmologist in New York), and a married daughter. The outstanding feature of James E. Kelly was his mesmeric personality, his devotion to his profession, with the highest and noblest ideals, his kindness to friends and patients, his loyalty to all.

REDMOND ROCHE.

Dr. ALBERT WILLIAM BEAUMONT died at his residence, Oak Hall, East Ham, on March 26th, in his 71st year, after many years of ill health. He was educated at St. John's College, Cambridge, and St. Mary's Hospital, obtaining the diploma of L.S.A. in 1882, the L.R.C.S.Ed. and L.M. in 1885, and graduating M.D.Dubl. in 1898. In 1886 he began to practise in East Ham, and was appointed surgeon to the Gas, Light, and Coke Company's Workmen's Provident Society, holding the post for nearly forty years. For many years he was medical officer of health for East Ham before it became a county borough, resigning subsequently owing to the pressure of private practice. His other appointments included those of medical officer to the East Ham Division of the West Ham Union for over thirty years, and consulting surgeon to the East Ham Cottage Hospital. He was a member of the British Medical Association and a Fellow of the Society of Medical Officers of Health. In 1918 he was joined in partnership by his eldest son, Dr. O. A. Beaumont, who succeeds him in the practice.

Dr. HENRY JOHNSTON BOYD of Hillsborough, co. Down, Northern Ireland, died in a private nursing home in Belfast on March 29th. He had been ailing for some time, and finally sought relief in an operation, but his strength was not equal to the demands made upon it, and he never fully rallied. He took the diplomas of L.R.C.P.and S.Ed. in 1880, and had been forty-one years dispensary medical officer of the Hillsborough district; he was most unremitting, painstaking, and conscientious in the discharge of his duties, beloved by his patients and all who came closely in contact with him, and universally respected and trusted in his area. He was always a member of the various local committees of the British Medical Association, and attended the meetings when his time was not occupied by numerous other calls. He held a high place in the estimation of his medical brethren, on account both of his professional ability and of his sterling worth, and as one who kept himself acquainted with recent medical advance. He leaves a widow and one son, at present assistant tuberculosis officer for County Down; with them much sympathy is felt.

Professor RUDOLF THEIS EDEN, director of the Freiburg University Surgical Clinic, has recently died of pulmonary embolism following fracture of the femur, at the age of 41. A memoir of him appears in the *Zentralblatt für Chirurgie* of March 28th.

Dr. LÉO TESTUT, the well known professor of anatomy in the Lyons Faculty of Medicine, has recently died.

Universities and Colleges.

UNIVERSITY OF LIVERPOOL.

THE following candidates have passed the examination for the diploma in tropical medicine:

J. Black, E. J. Crawford, Mary W. Ellam, F. N. Green, J. T. Johnson, Elizabeth K. Mackay, *K. S. Shah, C. H. B. Thompson, J. J. de Waal.

* Recommended for the A. H. Milne Medal.

UNIVERSITY OF ABERDEEN.

A GRADUATION ceremony was held on April 1st, when the degree of M.D. was conferred upon four successful candidates and those of M.B., Ch.B. upon fifty-one candidates; the names were printed in our issue of April 4th (p. 682).

The diploma in public health was conferred upon the following successful candidates: Agnes M. E. Benzie, J. C. Kerrin, Christina R. Laing, J. C. Milne, Lily M. Watt, Mabel Wilson.

QUEEN'S UNIVERSITY, BELFAST.

THE special spring graduation ceremony of the Queen's University, Belfast, was held on March 31st, when the following degrees and diplomas were conferred:

M.D. (with commendation).—Edward Armstrong.

M.B., B. CH., B.A.O.—*Rachael A. Elliott, *R. J. C. Maxwell, Margaret Bamber, D. D. Barker, Norah E. Bingham, Rabie A. Browne, N. C. Burns, W. M. Burns, R. J. W. Burrell, J. E. Campbell, Kathleen Cathcart, Charlotte C. Carlisle, P. H. Deeny, D. S. Gordon, P. Higgins, F. V. Hill, R. S. Johnston, J. A. Kelly, C. A. Keogh, M. C. MacCormac, J. M'Geough, C. Macready, T. A. Muckle, W. C. S. Murray, J. Purce, S. Robinson, G. Scarlett, Jane S. Walker, Margaret Young.

D.P.H.—J. Patton.

* With second-class honours.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

RE-ELECTION OF PRESIDENT.

AN extraordinary Comitia of the Royal College of Physicians of London was held on Monday, April 6th, at 5 p.m., the President, Sir Humphry Rolleston, being in the chair.

He referred to the loss the College had sustained by the recent death of the Registrar, Dr. J. A. Ormerod, and, on the motion of the Second Censor, a resolution expressing condolence with his family and referring to his services in the office of Registrar for more than sixteen years was passed in silence, all the Fellows standing.

The President then delivered the annual presidential address. He referred to the fact that there are now 373 Fellows as against 91 a hundred years ago, and that the Members now numbered 658, while there was still one Extra-licentiate. He referred to the work of the College during the past year, mentioning the special alteration of the by-laws, permitting the admission of women to the Fellowship. He then delivered obituary addresses upon the eleven Fellows who had died during the presidential year—namely, Dr. Hugh Walsham, Dr. R. Hingston Fox, Sir Sydney Russell-Wells, Dr. Sidney H. C. Martin, Dr. Henry Gervis, Dr. J. F. W. Tatham, Dr. Herbert Williamson, Dr. Clement Dukes, Sir James Mackenzie, the Right Hon. Sir Clifford Allbutt, and Dr. J. A. Ormerod.

On the motion of the Senior Fellow, Sir William Church, a hearty vote of thanks was accorded to the President for his address. Sir Humphry Rolleston vacated the presidential chair and the College proceeded to the election of President. Sir Humphry Rolleston obtained 83 votes out of 94 voting, and was re-elected President for the ensuing year.

Licences were granted to four candidates, and permission given to seal their diplomas. Communications were received from the Secretary of the Royal College of Surgeons, dated February 13th and March 12th. The meeting was then constituted as a special extraordinary Comitia for the purposes of a report from the Censors' Board. This report having been adopted, the following resolution was passed on the motion of the Senior Censor:

> "That William Lovell be declared to be no longer a Licentiate of the College; that he forfeit all the rights and privileges of a Licentiate; and that his name be expunged from the List of Licentiates—during the pleasure of the College."

The President afterwards dissolved the Comitia.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY Council meeting was held on April 2nd, when the President, Sir John Bland-Sutton, was in the chair.

Election of Fellows.

The following Members of twenty years' standing were elected Fellows: Dr. Alexander Primrose, C.B., Professor of Clinical Surgery in the University of Toronto; and Mr. J. Basil Hall, M.Chir.Cantab., Consulting Surgeon, Bradford Royal Infirmary, President of the British Medical Association.

Diplomas and Licence.

Diplomas of membership were granted to two candidates. The licence in dental surgery was granted to one candidate.

Jacksonian Prize.

The Jacksonian Prize for 1924 was awarded to Mr. A. Lawrence Abel, the subject for that year being "The pathology, diagnosis, and treatment of œsophageal obstruction." A certificate of honourable mention and an honorarium were awarded to Mr. E. Musgrave Woodman for his dissertation on this subject. The subject for the Jacksonian Prize for 1926 will be "The pathology, diagnosis, and treatment of abscess of the brain."

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

AT the monthly meeting of the President and Fellows, held on April 3rd, Francis Joseph O'Donnell, L.R.C.P.and S.I., M.R.C.P.I., was elected a Fellow of the College.

The following were admitted as licentiates in medicine and midwifery:

Anna M. Allen, M. J. Cleary, R. F. G. Dickson, J. A. Donworth, W. J. Flannery, C. Gardner, J. Graff, T. Griffith, D. J. Keane, M. J. Kelly, T. R. M'Cabe, M. A. Monahan, Aileen M. Mulcahy, M. O'Regan, B. Piunkett.

The Services.

AUXILIARY R.A.M.C. FUNDS.

THE annual meeting of the members of the Auxiliary Royal Army Medical Corps Funds will be held at 2.30 p.m. on Friday, April 24th, at 11, Chandos Street, London, W.1, when the annual report and financial statement for the year ended December 31st, 1924, will be presented, and the officers and committee for the current year elected.

Medical News.

DURING the last three weeks the number of deaths ascribed to influenza in the great towns of England and Wales has not varied much; the figures were 283, 304, 278. The numbers of cases of pneumonia (primary) notified in England and Wales have followed a similar course (1,395, 1,523, 1,418). In the South the stress of the epidemic seems to be past, but in the Birmingham district the mortality is still high. Last week Birmingham returned 34 deaths, the same number as in the previous week. The only other cities (excepting London, with 26 deaths) which returned 10 or more deaths were: Stoke-on-Trent (15), Liverpool (15), Manchester (11).

A COURSE of post-graduate demonstrations will be given at the General Hospital, Birmingham, and at the Queen's Hospital, Birmingham, on Tuesdays and Fridays from 3.30 to 5 p.m., commencing on April 21st and May 1st respectively. The course, which includes demonstrations on medical and surgical cases, skin diseases, ophthalmic cases, children's diseases, urinary diseases, insulin treatment, etc., will be given by the medical and surgical staffs. One demonstration will be given at the Children's Hospital, Ladywood Road, Birmingham. The fee for the course is 1 guinea. Further particulars can be obtained on application to the hospitals.

THE Fellowship of Medicine announces an intensive course in medicine, surgery, and the special departments, beginning on April 20th at the Hampstead General Hospital. From April 20th to May 2nd a course in proctology will be held at St. Mark's Hospital, and a special course in diseases of children at the Queen's Hospital, Hackney Road. In May courses will be given in dermatology at the Hospital for Diseases of the Skin, Blackfriars; in diseases of infants, at the Infants Hospital; in diseases of the throat, nose, and ear, at the Central London Throat, Nose, and Ear Hospital; and in psychological medicine, at the Maudsley Hospital. Copies of the syllabus of these courses may be obtained from the Secretary to the Fellowship of Medicine, No. 1, Wimpole Street, W.1.

ON April 1st Lord Balfour opened the new Hebrew University of Jerusalem, the organization of which was described in our issue of March 7th (p. 471). In his speech Lord Balfour pointed out that the Hebrew language, associated in the past with the poetry and religious teaching of Isaiah, was capable of being used in such modern extensions of science as microbiology. Three great theories in science—those of creative evolution, the new psychology, and relativity—had been enunciated by Jewish investigators, and in the darkest days of the Middle Ages Jews and Arabs had combined to provide the first sparks which had led eventually to the scientific illumination of Europe. The British Medical Association was represented by Wing Commander W. Tyrrell, D.S.O., *M.C.*, R.A.F.M.S., Principal Medical Officer of the Palestine Command.

THE KING has approved the award of a Royal medal—the Patron's Medal—by the Royal Geographical Society to Dr. A. F. R. Wollaston, D.S.C., for his explorations and journeys in Dutch New Guinea, Central Africa, and many other parts of the world. Dr. Wollaston was medical officer and naturalist to the first Mount Everest Expedition in 1921.

THE Kensington Division of the British Medical Association is arranging a ball in aid of the Royal Medical Benevolent Fund and Guild, to be held at the Kensington Town Hall, on Thursday, May 7th, from 9 to 2 o'clock. Corelli Windeatt's band has been engaged. Tickets, 1 guinea each, or six for 5 guineas, can be obtained from the Honorary Secretary, Dr. Howard Stratford, 20, Upper Phillimore Place, Kensington. As a result of last year's dance the Division was able to hand over £125 to the Fund after all expenses had been paid.

THE annual meeting of the Medical Missions Department of the Society for the Propagation of the Gospel in Foreign Parts will be held at 8 p.m. on April 22nd, in the Great Hall of the Church House, Westminster. The chairman will be the Bishop of Singapore, and the principal speaker will be Dr. F. S. Drewe, from Holy Cross Hospital, East Pondoland, who will show some new and beautiful slides of his medical work there.

THE report presented to the annual meeting of the Hospital Saturday Fund on April 4th showed that the total receipts for the year had been £107,342, while the total sum awarded was £70,488; the management expenses of the fund were £9,406, or 8.75 per cent. of the gross receipts.

AT the recent annual meeting of the British Spa Federation, which includes the New Zealand spas, certain conditions of membership were laid down. They include the possession of natural mineral waters of approved therapeutic value and of a bathing or pump-room establishment approved by the Federation, and also the existence of suitable local medical authority devoted to spa practice. Treatment must be given only under medical prescription. The amenities and sanitary conditions of the spa must be approved by the Federation, and the spa must be controlled by a public body or an approved private body. Before admitting a spa the Federation will depute three representatives (one of whom shall be a spa medical practitioner) to visit the spa and report fully thereon. Mr. John Hatton, Director of the Baths at Bath, was elected honorary secretary of the Federation to fill the vacancy caused by the resignation of Mr. F. J. C. Broome of Harrogate.

AN obituary notice of Sir Clifford Allbutt, with an excellent portrait, appears in *Il Policlinico* (Sezione Pratica) of March 30th.

THE Ministry of Health has issued a *Memorandum* on the duties of medical officers of health in England and Wales. It consists of an introduction and two appendixes, the second being "an index to the statutes, orders, regulations, etc., relating to the powers and duties of the medical officer of health." This second appendix is a formidable list, and shows the multiplicity and complexity of his duties. The memorandum can be obtained from the Stationery Office, price 2d. net.

THE Cambridge University Press announces for early publication *Papworth: Administrative and Economic Problems in Tuberculosis*, a collection of papers written by the late Sir German Sims Woodhead, the late Sir Clifford Allbutt, and Dr. P. C. Varrier-Jones, as the result of experience gained at the settlement for consumptives at Papworth, Cambridgeshire. The volume, to which Sir James Kingston Fowler has contributed an introduction, has been printed at the Papworth Press.

THE late Dr. E. E. Klein, F.R.S., formerly lecturer on advanced bacteriology at St. Bartholomew's Hospital Medical School, who died in February last, aged 80, has left estate of the gross value of £14,598.

MR. E. TUDOR OWEN, O.B.E., has been appointed an assistant secretary of the Ministry of Health.

THE thirty-eighth French congress of ophthalmology will be held at Brussels on May 11th, when a report will be made by Professor Lagrange of Bordeaux on infantile glaucoma. Further information can be obtained from the general secretary, Dr. René Onfray, 6, Avenue de la Motte-Picquet, Paris, VII°.

THE fourth International Medical Congress of Industrial Accidents and Diseases will meet at Amsterdam from September 7th to 12th. The honorary president is the Minister of the Netherlands to England, Jonkheer Dr. R. de Marees van Swinderen. Apart from the scientific proceedings there will be receptions by the County Council of Amsterdam and the Minister of Labour at the Hague and a trip to the harbours and the surrounding country. The president of the Congress is Sir Thomas Oliver and the honorary secretary Dr. Herman S. N. Menko, 2, Grosvenor Gardens, Cricklewood, N.W.2.

A SET of tables for computing standard metabolism by means of Krogh's respiration apparatus has been published in a small pamphlet by J. H. Schultz, publisher, of 15, Havnegade, Copenhagen. The price is Kr. 1.50.

A COMMITTEE has been formed for the erection of a monument to the Italian physiologist, Angelo Mosso, in his native town of Chieri.

DR. W. W. Keen of Philadelphia and Professor Sanarelli of Rome have been elected honorary foreign members of the Royal Academy of Medicine of Belgium.

DR. TERRIEN has been appointed professor of clinical ophthalmology in the Paris Faculty of Medicine, and Dr. Duvergey professor of urinary diseases in the Bordeaux Faculty.

THE Italian Antituberculosis Congress will be held at Naples from May 25th to 28th, under the presidency of Professor Andrea Fernanini.

Letters, Notes, and Answers.

THE telephone number of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is Gerrard 2630 (Internal Exchange). The telegraphic addresses are:

EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London.*

MEDICAL SECRETARY, *Mediocera Westrand, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

INCOME TAX.

Motor Car Transaction.

"W. A. W." bought in 1922 a B. car for £414, sold it in 1924 for £175, and bought a C. car for £365. The inspector of taxes refuses to allow the net cost, £365–£175=£190, saying that the maximum amount allowable is the excess over £175 of the cost of a car exactly similar to the B., now being sold at £320, instead of at the former £414.

*** The inspector's contention is unusual and would not, we believe, be supported on appeal. The statutory provision dealing with the question of capital is No. 3 (*f*) of the rules applicable to Cases I and II, Schedule D, which reads as follows: "Any capital expended or intended to be expended as capital in respect of any trade, profession . . . " shall not be allowed as a deduction. Was any portion of the net £190 expended "capital expenditure"? We think not. "W. A. W." had sunk £414 in equipping himself with a motor car, and for income tax purposes he is not entitled to any depreciation. For such purposes therefore it must be assumed that at the time when the transaction in question took place that was still the amount of capital in the equipment. The contention of the inspector is, in effect, that the transaction added £45 to the capital, which, taking all the circumstances into account, seems to be capable of refutation on the face of it. We suggest that our correspondent should put this argument to the inspector, intimating that he is advised that he would have a good prospect of succeeding in an appeal to the General or Special Commissioners.

LETTERS, NOTES, ETC.

THE SUNLESS WINTER.

THE records made at the Agricultural Experimental Station, Rothamsted, Herts, confirm the general impression that the winter of 1924–25 was, if the past tense can be used, uncommonly wet and sunless. For the six months September 1st to February 28th, which is reckoned the first half of the harvest year, the amount of rain was 20.88 inches, an excess of 5.89 inches. There was practically no extra evaporation from the soil and almost the whole of the excess of rain drained through it; the amount was 16.029 inches, or 5.749 inches above the average. The average amount of moisture lost by evaporation during the six cold months should be about 5 inches; last winter it was only 4¼. The annual average amount of sunlight daily should be 2¾ hours; it was 2½, and the total amount of sunshine for the six months was 92.2 hours below the average; only January received over the average amount, and then it was only one hour. Though March was dry, the rainfall being 0.781, as compared with 1.219, the amount of sunshine was below the average. No month since last July has been unusually sunny, and so far the hope of Dr. Christmas, of the Records Department, that the spring allowance will be more liberal, has not been fulfilled.

MATERNAL MORTALITY.

MR. ALECK BOURNE, F.R.C.S. (London), writes: If "A Country Practitioner" (JOURNAL, March 21st, p. 586) and "A Town Practitioner (April 4th, p. 634), who believe that maternal mortality is "grossly exaggerated," wish to know the cold facts of the situation, they should read the very lucid report on this subject written by Dr. Janet Campbell and published by the Ministry of Health in 1923. There they will see that the death rate per 1,000 births in 1922 was 3.81, of which 1.33 were due to sepsis and 2.43 to "other causes." Compared with some other European countries, the mortality per 1,000 for the years 1911–13 was as follows: Scotland 5.7, France 4.78, England and Wales 3.91, Norway 2.90, Italy 2.44, and Holland 2.29. Spain and Switzerland both had higher rates than England and Wales, but the position of Scotland, as head of the list, and England and Wales, more than half-way up, cannot be any reason for complacency. The distribution of mortality in this country is highest on the whole for rural areas—thus, Breconshire (1919–22) reported 7.88 per 1,000 and Westmorland 6.75, while the average for all the rural districts was 4.22, as opposed to 2.98 for London (1921). It is quite true that many men will have conducted large obstetric practices for many years without a death, but their happy experience is not a true reflex of the condition as a whole. The death rate of a large maternity hospital is inevitably higher than that of any single general practice, but, after all, the deaths in maternity hospitals occur almost solely amongst the emergencies admitted from somebody's practice outside. Having read Dr. Janet Campbell's report, it will be for your correspondents to judge for themselves whether there is "gross exaggeration" or too much "fuss" made about a particularly important aspect of public health.

TREATMENT OF PSORIASIS.

DR. J. B. MACKAY (Alberta, Canada) has sent us a paper on the treatment of psoriasis, from which we extract the following passages:

I believe I have discovered a combined treatment for psoriasis which is not only effective but simple. All possible sources of infection must first be carefully eliminated. I have, rightly or wrongly, traced the original source of the disease in several cases directly to oral sepsis, and I should not expect a satisfactory result until such foci had been removed. The treatment consists of four concurrent procedures, the most important of which is, I think, a series of intramuscular protein injections. Having found it handy and effective, I have used throughout Abbott's "lactigen," commencing with 5 c.cm. and gradually increasing the subsequent doses to 10 or even 15 c.cm. The injections are given every three or four days, the rate of increase being determined by the amount of reaction. Usually six injections are sufficient, and, within reasonable limits, the more definite the reaction is the better are the results. A rise of temperature to 101° or 102° F. during the night following the injection is desirable. An ointment containing chrysarobin is applied daily to each patch (chrysarobin gr. xx, liq. carb. deterg. ♏ xxx, ung. hydrarg. ammon. chlor. ʒij, petrolati ad ʒj). It is essential that this should be rubbed in; any irritation of the surrounding skin can usually be relieved with talcum powder. Once a week a hot bath is taken, after which the exact state of the lesions can be readily seen. Internally thymus gland in 5-grain capsules, three or four times a day, is prescribed. If preferred it may be given by intramuscular injection, or the same effect may be produced by stimulating the thymus with small doses of *x* rays, as recommended by Brock (*Muench. med. Woch.*, lxviii, 191, 1921). Without thymus medication the same steady improvement is not seen: the healing process is more irregular and the results less satisfactory. Lastly, a low protein diet will hasten results; it should be maintained after cure. In my hands the average length of time for the disappearance of all lesions and the return of the skin to normal has been five weeks. The more recent the appearance, or the more "acute" the case, the more speedily it responds; a change can generally be seen within the two days following the first injection, after which the improvement is steadily maintained to ultimate cure. All the amounts stated above refer to adult doses. In my series of cases only one relapsed after treatment; this patient had patches of psoriasis all over the body, and the condition had lasted for many years. Two further injections resulted in cure.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 35, 37, 38, and 39 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 36 and 37.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *172*.